



# Installation, Start-Up and Service Instructions

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## SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform the basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. These instructions describe how to install, start up, and service 62E energy recovery ventilator (ERV) units.

### ⚠ WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

## GENERAL

The 62E ERV units recover energy from building exhaust air and pre-condition ventilation air. See Tables 1A-2B for unit data. All 62EB-62EU units are configured for vertical discharge (through the bottom). Vertical units may be installed on:

- a stand-alone roof curb
- a combination curb for direct coupled connection to a rooftop unit

If horizontal supply and return is desired using a vertical unit, the vertical unit may be installed on a horizontal supply/return base.

NOTE: The horizontal supply/return base accessory includes a roof curb. The horizontal supply/return base should NOT be used with a stand-alone roof curb.

All 62E2-62E7 units are configured for horizontal discharge (through the side). Horizontal units may be installed on a stand-alone roof curb.

**DIRECT COUPLED APPLICATIONS (Vertical)** — The ERV unit can be installed directly coupled to a RTU (rooftop unit). For vertical (through the roof) applications, the connection between the 62EB-62EU ERV unit and the RTU may be

made with the use of a combination roof curb or by using the drop in damper box accessory. The combination roof curb is a single curb that supports both the ERV and the RTU and as

internal supply and exhaust air transitions. The drop in damper box provides a means to make the supply and exhaust air transitions below the roof.

**Table 1A — Physical Data — SI**

UNIT 62E	BA/7A	BC/7C	CC/2C	CD/2D	CG/2G	DD/3D	DG/3G
NOMINAL CAPACITY (L/s)	165	235	470	425	520	615	755
CAPACITY RANGE (L/s)	94-378	94-378	236-543	189-519	236-661	283-755	378-944
MAXIMUM SHIPPING WEIGHT (kg)	150	152	221	228	228	284	284
MAXIMUM OPERATING WEIGHT (kg)	127	130	199	205	205	262	262
UNIT DIMENSIONS (mm)							
Length (includes hoods)	1123/1242		1570/1461		1717/1455		
Width	790/925		980/1115		1128/1262		
Height	879/793		1069/983		1064/1130		
ROTARY ENERGY EXCHANGER							
Type	Monolithic		Segmented				
Size (Diam x Depth) (mm)	483 x 25	483 x 51	635 x 51	635 x 76	762 x 76		
Nominal Drive Motor kW	0.07	0.07	0.07	0.07	0.07		
SUPPLY/EXHAUST FANS							
Type	Centrifugal DWDI		Backward Inclined, Single Width Single Inlet				
Drive Type	Direct		EC Motor with Integral Frequency Drive				
Fan Option Code (see fan option table)	A	A, B	C		C		
FILTERS							
Type	51 mm Pleated						
Exhaust Air – Qty...Size (L x W x D) (mm)	1...305 x 610 x 51		1...356 x 635 x 51		2...406 x 635 x 51		
Outside Air – Qty...Size (L x W x D) (mm)	1...305 x 610 x 51		1...356 x 635 x 51		2...406 x 635 x 51		

UNIT 62E	EB/4B	ED/4D	EF/4F	EG/4G	HB/5B	HD/5D	HF/5F	HG/5G	KD/6D	KG/6G
NOMINAL CAPACITY (L/s)	660	1040	1040	1225	1415	2170	2170	2595	2125	3680
CAPACITY RANGE (L/s)	378-850	519-1227	614-1274	614-1652	661-1700	1038-2643	1038-2550	1415-3492	1180-2595	1888-4955
MAXIMUM SHIPPING WEIGHT (kg)	508	525	508	525	789	803	789	803	1157	1157
MAXIMUM OPERATING WEIGHT (kg)	485	503	485	503	766	781	766	781	1043	1043
UNIT DIMENSIONS (mm)										
Length (includes hoods)	2172/1798		2639/2035		2908/2187					
Width	1387/1521		1702/1836		1971/2106					
Height	1283/1389		1420/1704		1572/1974					
ROTARY ENERGY EXCHANGER										
Type					Segmented					
Size (Diam x Depth) (mm)	914 x 38	914 x 76	914 x 38	914 x 76	1321 x 38	1321 x 76	1321 x 38	1321 x 76	1626 x 76	
Nominal Drive Motor kW	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
SUPPLY/EXHAUST FANS										
Type										
Drive Type										
Fan Option Code (see fan option table)	C, E		E, F		E, F, L		E, F, L, M		F, L, M	
FILTERS										
Type	51 mm Pleated									
Exhaust Air – Qty...Size (L x W x D) (mm)	2...508 x 635 x 51		3...508 x 635 x 51		6...406 x 610 x 51					
Outside Air – Qty...Size (L x W x D) (mm)	2...508 x 635 x 51		3...508 x 635 x 51		6...406 x 610 x 51					

LEGEND

DWDI — Double Width, Double Inlet  
 EC — Electronically Commutated

**Table 1A — Physical Data — SI (cont)**

UNIT 62E	LD	LG	MD	MG	ND	NG	PD	PG
<b>NOMINAL CAPACITY (L/s)</b>	3585	4340	2830	5100	5200	6500	5950	7080
<b>CAPACITY RANGE (L/s)</b>	1650-4250	2360-5665	1415-3540	2595-6845	2595-6370	330-8260	2830-7315	3540-9440
<b>MAXIMUM SHIPPING WEIGHT (kg)</b>	1232	1308	1397	1397	1482	1482	1533	1608
<b>MAXIMUM OPERATING WEIGHT (kg)</b>	1118	1194	1283	1283	1368	1368	1420	1495
<b>UNIT DIMENSIONS (mm)</b>								
Length (includes hoods)	2355		2532		2685		2812	
Width	2162		2339		2492		2619	
Height	1687		1712		1737		1824	
<b>ROTARY ENERGY EXCHANGER</b>								
Type	Segmented							
Size (Diam x Depth) (mm)	1727 x 76		1880 x 76		2057 x 76		2184 x 76	
Nominal Drive Motor kW	0.2		0.2		0.2		0.2	
<b>SUPPLY/EXHAUST FANS</b>								
Type	Backward Inclined, Single Width Single Inlet							
Drive Type	EC Motor with Integral Frequency Drive							
Fan Option Code (see fan option table)	F, G, L, M	F, G, M	F, G, M		F, G, M	G, M	F, G, M	G, M
<b>FILTERS</b>								
Type	51 mm Pleated							
Exhaust Air – Qty...Size (L x W x D) (mm)	6...406 x 635 x 51		6...457 x 635 x 51		6...508 x 508 x 51		8...508 x 610 x 51	
Outside Air – Qty...Size (L x W x D) (mm)	6...406 x 635 x 51		6...457 x 635 x 51		6...508 x 508 x 51		8...508 x 610 x 51	

UNIT 62E	RD	RG	SD	SG	TD	TG	UD	UG
<b>NOMINAL CAPACITY (L/s)</b>	6500	8000	7800	9400	8500	10250	9700	11800
<b>CAPACITY RANGE (L/s)</b>	3300-8025	4250-11325	3775-9450	5190-13685	4250-10380	5665-14630	4720-11800	6600-16990
<b>MAXIMUM SHIPPING WEIGHT (kg)</b>	1974	1974	2126	2126	2486	2486	2486	2486
<b>MAXIMUM OPERATING WEIGHT (kg)</b>	1860	1860	2013	2013	2373	2373	2373	2373
<b>UNIT DIMENSIONS (mm)</b>								
Length (includes hoods)	3015		3117		3294		3447	
Width	2822		2924		3101		3251	
Height	1824		1925		2068		2118	
<b>ROTARY ENERGY EXCHANGER</b>								
Type	Segmented							
Size (Diam x Depth) (mm)	2337 x 76		2515 x 76		2642 x 76		2794 x 76	
Nominal Drive Motor kW	0.2		0.2		0.2		0.2	
<b>SUPPLY/EXHAUST FANS</b>								
Type	Backward Inclined, Single Width Single Inlet							
Drive Type	EC Motor with Integral Frequency Drive							
Fan Option Code (see fan option table)	G, H, J, M, N	G, H, J, N	H, J, K, N		H, K, J, N, P, R	K, J, N, P, R	H, K, J, N, P, R	
<b>FILTERS</b>								
Type	51 mm Pleated							
Exhaust Air – Qty...Size (L x W x D) (mm)	10...508 x 508 x 51		8...610 x 610 x 51		8...635 x 635 x 51		8...635 x 635 x 51	
Outside Air – Qty...Size (L x W x D) (mm)	10...508 x 508 x 51		8...610 x 610 x 51		8...635 x 635 x 51		8...635 x 635 x 51	

**LEGEND**

**DWDI** — Double Width, Double Inlet  
**EC** — Electronically Commutated

**Table 1B — Physical Data — English**

<b>UNIT 62E</b>	<b>BA/7A</b>	<b>BC/7C</b>	<b>CC/2C</b>	<b>CD/2D</b>	<b>CG/2G</b>	<b>DD/3D</b>	<b>DG/3G</b>
<b>NOMINAL CAPACITY (cfm)</b>	350	500	1000	900	1100	1300	1600
<b>CAPACITY RANGE (cfm)</b>	200-800	200-900	500-1150	400-1100	500-1400	600-1600	800-2000
<b>MAXIMUM SHIPPING WEIGHT (lb)</b>	331	336	488	502	502	627	627
<b>MAXIMUM OPERATING WEIGHT (lb)</b>	281	286	438	452	452	577	577
<b>UNIT DIMENSIONS (in.)</b>							
Length (includes hoods)	44.2/48.9		61.8/57.5		67.6/57.3		
Width	31.1/36.4		38.6/43.9		44.4/49.7		
Height	34.6/31.2		42.1/38.7		41.9/44.5		
<b>ROTARY ENERGY EXCHANGER</b>							
Type	Monolithic		Segmented				
Size (Diam x Depth) (in.)	19 x 1.0	19 x 2.0	25 x 2.0	25 x 3.0	30 x 3.0		
Nominal Drive Motor Hp	0.09	0.09	0.09	0.09	0.09		
<b>SUPPLY/EXHAUST FANS</b>							
Type	Centrifugal DWDI		Backward Inclined, Single Width Single Inlet				
Drive Type	Direct		EC Motor with Integral Frequency Drive				
Fan Option Code (see fan option table)	A	A, B	C		C		
<b>FILTERS</b>							
Type	2 in. Pleated						
Exhaust Air – Qty...Size (L x W x D) (in.)	1...12 x 24 x 2		1...14 x 25 x 2		2...16 x 25 x 2		
Outside Air – Qty...Size (L x W x D) (in.)	1...12 x 24 x 2		1...14 x 25 x 2		2...16 x 25 x 2		

<b>UNIT 62E</b>	<b>EB/4B</b>	<b>ED/4D</b>	<b>EF/4F</b>	<b>EG/4G</b>	<b>HB/5B</b>	<b>HD/5D</b>	<b>HF/5F</b>	<b>HG/5G</b>	<b>KD/6D</b>	<b>KG/6G</b>
<b>NOMINAL CAPACITY (cfm)</b>	1,400	2,200	2,200	2,600	3,000	4,600	4,600	5,500	4,500	7,800
<b>CAPACITY RANGE (cfm)</b>	800-1,800	1,100-2,600	1,300-2,700	1,300-3,500	1,400-3,600	2,200-5,600	2,200-5,400	3,000-7,400	2,500-5,500	4,000-10,500
<b>MAXIMUM SHIPPING WEIGHT (lb)</b>	1,120	1,158	1,120	1,158	1,739	1,771	1,739	1,771	2,550	2,550
<b>MAXIMUM OPERATING WEIGHT (lb)</b>	1,070	1,108	1,070	1,108	1,689	1,721	1,689	1,721	2,300	2,300
<b>UNIT DIMENSIONS (in.)</b>										
Length (includes hoods)	85.5/70.8		103.9/80.1		114.5/86.1					
Width	54.6/59.9		67.0/72.3		77.6/82.9					
Height	50.5/54.7		55.9/67.1		61.9/77.7					
<b>ROTARY ENERGY EXCHANGER</b>										
Type	Segmented									
Size (Diam x Depth) (in.)	36 x 1.5	36 x 3.0	36 x 1.5	36 x 3.0	52 x 1.5	52 x 3.0	52 x 1.5	52 x 3.0	64 x 3.0	
Nominal Drive Motor Hp	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/4	
<b>SUPPLY/EXHAUST FANS</b>										
Type	Backward Inclined, Single Width Single Inlet									
Drive Type	EC Motor with Integral Frequency Drive									
Fan Option Code (see fan option table)	C, E			E, F		E, F, L		E, F, L, M		F, L, M
<b>FILTERS</b>										
Type	2 in. Pleated									
Exhaust Air – Qty...Size (L x W x D) (in.)	2...20 x 25 x 2		3...20 x 25 x 2		6...16 x 24 x 2					
Outside Air – Qty...Size (L x W x D) (in.)	2...20 x 25 x 2		3...20 x 25 x 2		6...16 x 24 x 2					

**LEGEND**

**DWDI** — Double Width, Double Inlet  
**EC** — Electronically Commutated

**Table 1B — Physical Data — English (cont)**

UNIT 62E	LD	LG	MD	MG	ND	NG	PD	PG
<b>NOMINAL CAPACITY (cfm)</b>	7,600	9,200	6,000	10,800	11,000	13,800	12,600	15,000
<b>CAPACITY RANGE (cfm)</b>	3,500-9,000	5000-12,000	3000-7500	5500-14,500	5500-13,500	7000-17,500	6000-15,500	7500-20,000
<b>MAXIMUM SHIPPING WEIGHT (lb)</b>	2,715	2,883	3,079	3,079	3,267	3,267	3,381	3,545
<b>MAXIMUM OPERATING WEIGHT (lb)</b>	2,465	2,633	2,829	2,829	3,017	3,017	3,131	3,295
<b>UNIT DIMENSIONS (in.)</b>								
Length (includes hoods)	92.7		99.7		105.7		110.7	
Width	85.1		92.1		98.1		103.1	
Height	66.4		67.4		68.4		71.8	
<b>ROTARY ENERGY EXCHANGER</b>								
Type	Segmented							
Size (Diam x Depth) (in.)	68 x 3.0		74 x 3.0		81 x 3.0		86 x 3.0	
Nominal Drive Motor Hp	1/4		1/4		1/4		1/4	
<b>SUPPLY/EXHAUST FANS</b>								
Type	Backward Inclined, Single Width Single Inlet							
Drive Type	EC Motor with Integral Frequency Drive							
Fan Option Code (see fan option table)	F, G, L, M	F, G, M	F, G, M		F, G, M	G, M	F, G, M	G, M
<b>FILTERS</b>								
Type	2 in. Pleated							
Exhaust Air – Qty...Size (L x W x D) (in.)	6...16 x 25 x 2		6...18 x 25 x 2		8...20 x 20 x 2		8...20 x 24 x 2	
Outside Air – Qty...Size (L x W x D) (in.)	6...16 x 25 x 2		6...18 x 25 x 2		8...20 x 20 x 2		8...20 x 24 x 2	

UNIT 62E	RD	RG	SD	SG	TD	TG	UD	UG
<b>NOMINAL CAPACITY (cfm)</b>	13,800	17,000	16,500	20,000	18,000	21,700	20,500	25,000
<b>CAPACITY RANGE (cfm)</b>	7,000-17,000	9,000-24,000	8,000-20,000	11,000-29,000	9,000-22,000	12,000-31,000	10,000-25,000	14,000-36,000
<b>MAXIMUM SHIPPING WEIGHT (lb)</b>	4351	4351	4688	4688	5481	5481	5481	5481
<b>MAXIMUM OPERATING WEIGHT (lb)</b>	4101	4101	4438	4438	5231	5231	5231	5231
<b>UNIT DIMENSIONS (in.)</b>								
Length (includes hoods)	118.7		122.7		129.7		135.7	
Width	111.1		115.1		122.1		128.0	
Height	71.8		75.8		81.4		83.4	
<b>ROTARY ENERGY EXCHANGER</b>								
Type	Segmented							
Size (Diam x Depth) (in.)	92 x 3.0		99 x 3.0		104 x 3.0		110 x 3.0	
Nominal Drive Motor Hp	1/3		1/3		1/3		1/3	
<b>SUPPLY/EXHAUST FANS</b>								
Type	Backward Inclined, Single Width Single Inlet							
Drive Type	EC Motor with Integral Frequency Drive							
Fan Option Code (see fan option table)	G, H, J, M, N	G, H, J, N	H, J, K, N		H, K, J, N, P, R	K, J, N, P, R	H, K, J, N, P, R	
<b>FILTERS</b>								
Type	2 in. Pleated							
Exhaust Air – Qty...Size (L x W x D) (in.)	10...20 x 20 x 2		8...24 x 24 x 2		8...25 x 25 x 2		8...25 x 25 x 2	
Outside Air – Qty...Size (L x W x D) (in.)	10...20 x 20 x 2		8...24 x 24 x 2		8...25 x 25 x 2		8...25 x 25 x 2	

**LEGEND**

**DWDI** — Double Width, Double Inlet  
**EC** — Electronically Commutated

**Table 2A — Supply/Exhaust Fan Options Physical Data — SI**

FAN OPTION CODE	A	B	C	E	F	G	H
Wheels Qty...Width (mm)	1...128 x 110	2...128 x 110	1...400	1...500	2...500	3...500	4...500
Nominal Motor kW (per each fan)	0.45	0.45	0.88	2.70	2.70	2.70	2.70

FAN OPTION CODE	J	K	L	M	N	P	R	S
Wheels Qty...Width (mm)	5...500	6...500	1...630	2...630	3...630	7...500	8...500	1...250
Nominal Motor kW (per each fan)	2.70	2.70	2.90	2.90	2.90	2.70	2.70	2.70

**Table 2B — Supply/Exhaust Fan Options Physical Data — English**

FAN OPTION CODE	A	B	C	E	F	G	H
Wheels Qty...Width (in.)	1...5 x 4 1/8	2...5 x 4 1/8	1...15 3/4	1...19 3/4	2...19 3/4	3...19 3/4	4...19 3/4
Nominal Motor Hp (per each fan)	0.61	0.61	1.18	3.62	3.62	3.62	3.62

FAN OPTION CODE	J	K	L	M	N	P	R	R
Wheels Qty...Width (in.)	5...19 3/4	6...19 3/4	1...24 3/4	2...24 3/4	3...24 3/4	7...19 3/4	8...19 3/4	1...9 7/8
Nominal Motor Hp (per each fan)	3.62	3.62	3.89	3.89	3.89	3.62	3.62	3.62

**DIRECT COUPLED APPLICATIONS (Horizontal)** — For horizontal applications (above the roof) using 62EB-EU units, the horizontal supply/return base and transition accessories may be used.

For horizontal applications using 62E2-E7 units, a standard roof curb and transition accessories may be used.

**INSTALLATION**

**Step 1 — Inspect the Unit** — Inspect the unit; file a claim with the shipping company if the unit is damaged. Check the packing list to ensure that the correct items have been received and notify your Carrier representative of any discrepancy.

**Step 2 — Install Combination Roof Curb (62EB-EU Units)** — For 62EB-EU units, the combination roof curb is a single curb that supports both the ERV and RTU and has internal supply and exhaust air transitions. See Fig. 1.

NOTE: For horizontal applications with 62E2-E7 units, a standard roof curb and horizontal transition can be used.

**LOCATE THE COMBINATION CURB** — Prior to locating the combination curb, consider the structural support required for the rooftop system and the duct drop location in relation to the joists. Allow sufficient space for service, clearance, and locations of vents or other sources of air. Refer to Fig. 2 and 3 for ERV clearance requirements. Refer to the rooftop installation instructions for more information regarding location considerations.

**PREPARE ROOF CURB LOCATION** — Cut a hole in the roof for duct openings. Your local Carrier sales representative can provide dimensional drawing for the combination curb. See this drawing for duct opening dimensions. Frame the opening to provide adequate structural support.

**SET THE COMBINATION CURB** — Set the combination curb over the roof opening. Level the curb by placing shims under the bottom flange of the curb. Secure the curb in place by welding or fastening the curb to the roof.

**INSTALL DUCTWORK** — Ductwork will be installed in the curb for combination curb applications. The supply duct will hang from the top of the curb. The return duct will attach to a stub duct provided with the combination roof curb.

NOTE: Ductwork must be installed before the RTU is set in place.

**INSTALL GASKETS** — The combination curbs come with a gasketing package to provide a seal between the RTU and ERV units and the top perimeter of the combination curb. Install the gasket around the top perimeter of the curb and around the supply and return opening. Gasket strips must fit tightly together, leaving no gaps for leakage.

**INSTALL ROOFING MATERIALS** — Insulate and add a cant strip to the combination curb. Follow suggested and acceptable roofing procedures for applying roofing materials. The roofing material should extend up to the wood nailer and be secured under the counter flashing. Follow all local, national, and industry roofing standards. Refer to Fig. 4 for roofing recommendations.

**Step 3 — Install Drop-In Damper Box (62EB-EU Units)** — The drop-in damper box accessories are designed to fit into the return air openings of the standard factory curb of Carrier RTUs. The damper box provides connections for return air from the conditioned space, exhaust air to the ERV, and ventilation air from the ERV. The ERV would be installed on a stand-alone roof curb and field-supplied ductwork would be run between the damper box and ERV curb. See Fig. 5. The maximum length of the field-supplied duct is 100 equivalent feet.

**LOCATE THE ERV ROOF CURB** — Prior to locating the ERV roof curb consider the structural support required for the rooftop system, the duct drop location in relation to the joists, and the 100 equivalent foot duct length limitation between the ERV and RTU. Allow sufficient space for service, clearance, and locations of vents or other sources of air. Refer to Fig. 2 and 3 for ERV clearance requirements. Refer to the rooftop installation instructions for more information regarding location and installation considerations for the RTU curb.

**ASSEMBLE THE ERV ROOF CURB** — Connect the curb side and the curb end. Insert the tabs on the curb end into the slots on the curb sides. See Fig. 6. Press firmly until the pieces lock into place. It may be necessary to exert additional force on top of the curb to lock the pieces in place. Ensure the curb pieces are locked together prior to proceeding further. Repeat for other corners of the roof curb.

**NOTE:** If lifting or moving the roof curb assembly, hammer the tabs over 90 degrees.

**PREPARE ROOF CURB LOCATION** — Cut a hole in the roof for duct openings. See Fig. 7 for duct opening dimensions. Frame the opening to provide adequate structural support.

**SET THE ERV ROOF CURB** — Fit the roof curb assembly by measuring across the corners of the curb to ensure a square fit. Set the roof curb over the roof opening. Level the curb by placing shims under the bottom flange of the curb. Secure the curb in place by welding or fastening the curb to the roof.

**INSTALL DUCTWORK** — Ductwork will be installed in the ERV roof curb for applications utilizing the drop-in damper box. The duct will hang from the top of the curb. Refer to Fig. 7 to determine the duct size required. Provide field-manufactured duct and place into the supply and return openings in the curb.

**NOTE:** Ductwork must be installed in the ERV curb before the ERV unit is set in place.

**NOTE:** Drop-in damper box must be installed in the RTU curb before the RTU is set in place.

**INSTALL GASKETS** — The ERV roof curbs come with a gasketing package to provide a seal between the ERV unit and the top perimeter of the roof curb. Install the gasket around the top perimeter of the curb and around the supply and return opening. Gasket strips must fit tightly together, leaving no gaps for leakage.

**IMPORTANT:** Gasket installation is critical for water integrity. Improperly installed gaskets can result in air or water leaks, leading to poor unit performance.

**INSTALL ROOFING MATERIALS** — Insulate and add a cant strip to the roof curb. Follow suggested and acceptable

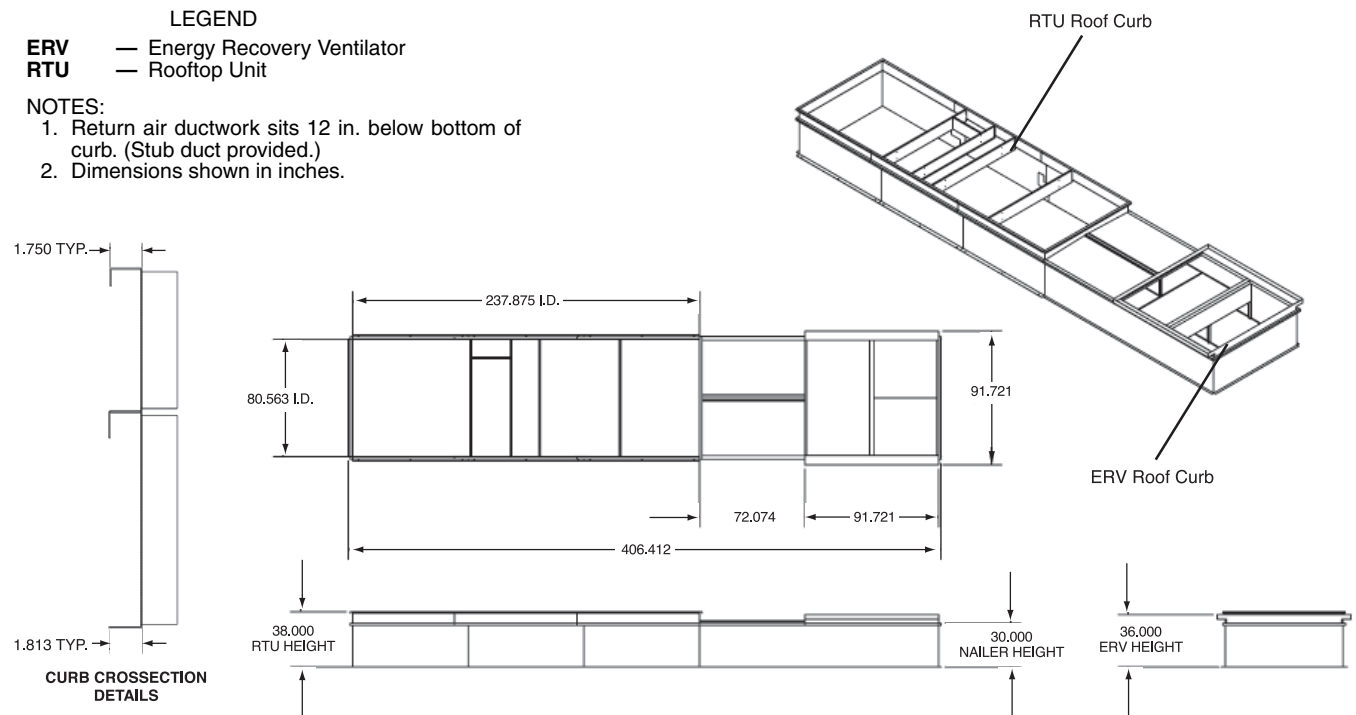
roofing procedures for applying roofing materials. The roofing material should extend up to the wood nailer and be secured under the counter flashing. Follow all local, national, and industry roofing standards. Refer to Fig. 4 for roofing recommendations.

**INSTALL DROP-IN DAMPER BOX** — Place the damper box into the RTU curb. Allow the damper box flanges to rest on the curb. Secure the damper box in place with 1-in. self-tapping screws. Install ductwork to connect the damper box to the ERV curb. The upper damper box connection must be ducted to the ERV supply air, and the lower damper box connection must be ducted to the ERV exhaust air. See Fig 5. Refer to the drop-in damper box dimensional sheets to determine the duct size required. Your local Carrier sales representative can provide you with this dimensional data.

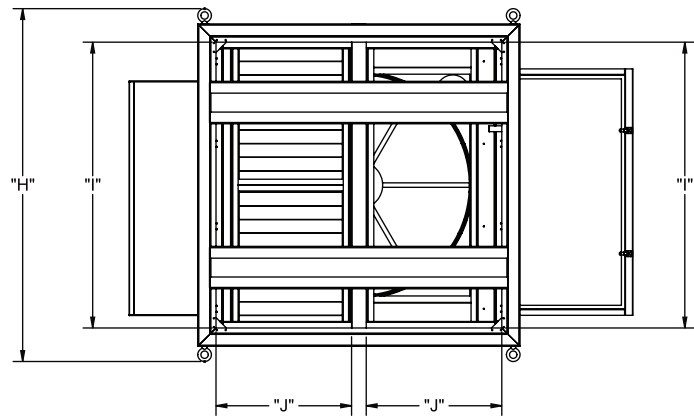
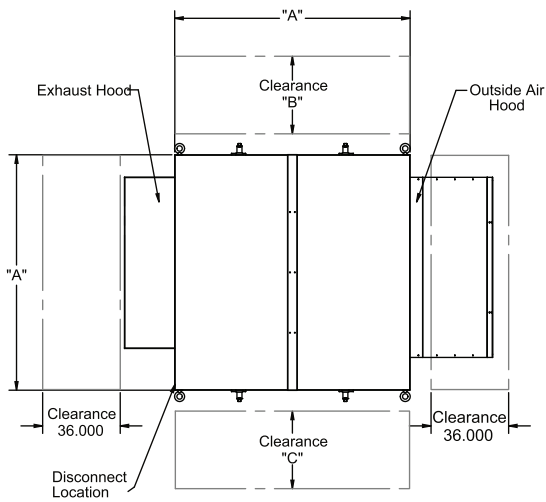
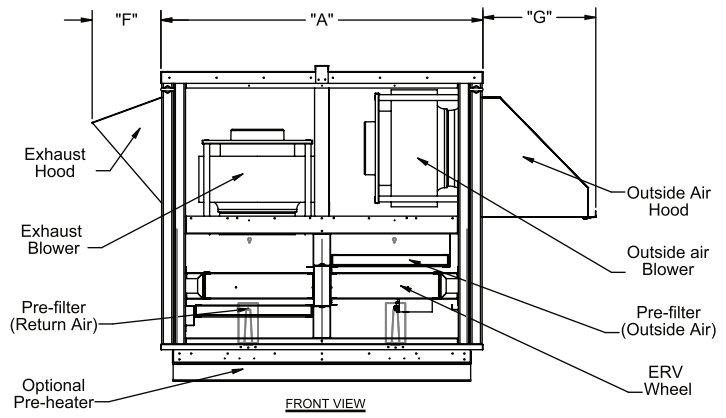
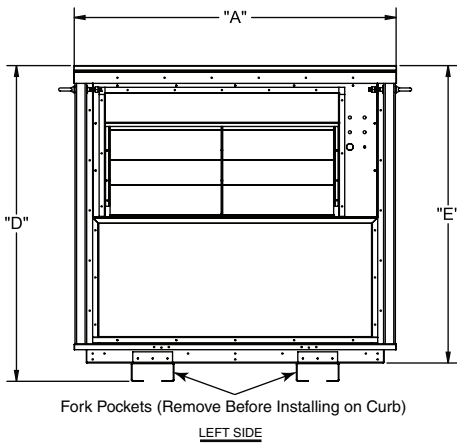
**Step 4 — Install Horizontal Base and Transition (62EB-EU and 62E2-E7 Units)** — The horizontal transition accessory is used to connect the ERV to the horizontal return of a Carrier rooftop unit. To provide horizontal exhaust and ventilation air connections on 62EB-EU units, the horizontal base accessory must also be installed. The accessory is not needed on 62E2-E7 units. The rooftop unit must be installed on a standard 14 in. high roof curb and positioned at a specific distance relative to the ERV base. A typical arrangement is shown in Fig. 8 and 9. See Fig. 10 for 62E2-E7 unit dimensions. Your local Carrier sales representative can provide you with dimensional data for the appropriate Carrier RTU and 62E model installation.

**LOCATE THE ROOF CURB** — Prior to locating the roof curb consider the structural support required for the rooftop system. Allow sufficient space for service, clearance, and locations of vent or other sources of air. Refer to Fig. 2, 3, and 10 for ERV clearance requirements. Refer to the rooftop installation instructions for more information regarding location considerations.

Proper location of the roof curb in relationship to the RTU roof curb is critical for proper fit of the horizontal transition. See Fig. 8 and 9. Refer to the ERV unit submittals provided by your local Carrier sales representative for the correct dimensions.



**Fig. 1 — Typical Combination Curb**



TOP VIEW

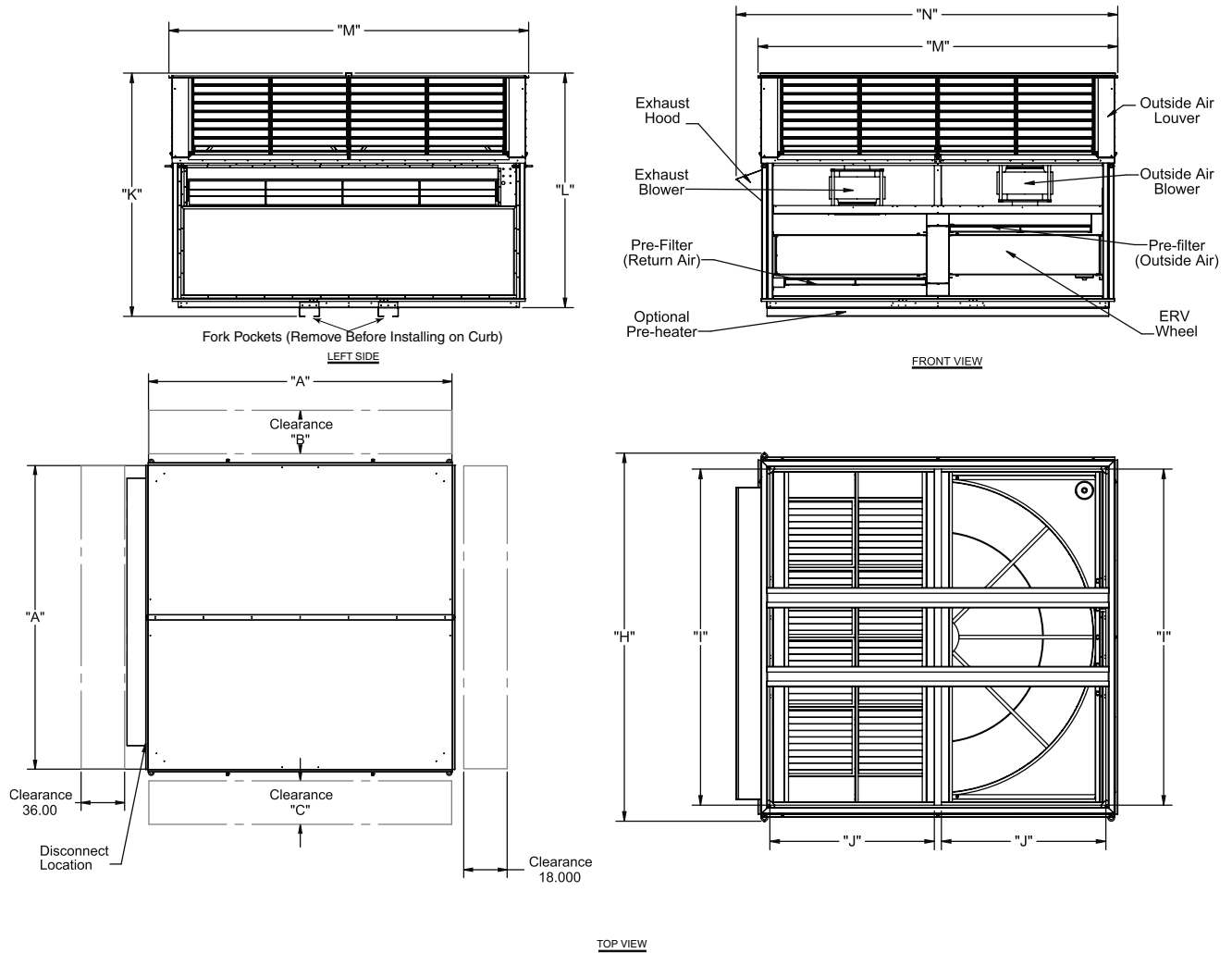
62E UNIT TYPE	DIMENSIONS (in.)									
	A	B	C	D	E	F	G	H	I	J
B	31.138	36.000	36.000	37.645	34.559	5.850	5.757	35.076	24.971	11.801
C	38.625	18.000	36.000	45.183	42.078	8.916	14.239	43.875	32.471	15.485
D	44.425	18.000	45.000	45.043	41.938	8.916	14.239	49.675	38.271	18.260
E	54.625	20.000	55.000	53.562	50.458	11.677	19.165	59.875	48.495	22.997
H	67.045	20.000	65.000	59.022	55.918	11.677	25.164	72.294	60.915	29.207
K	77.625	27.000	75.000	64.972	61.868	11.677	25.164	82.875	71.495	34.247

62E UNIT TYPE	DIMENSIONS (mm)									
	A	B	C	D	E	F	G	H	I	J
B	791	914	914	956	878	149	146	891	634	300
C	981	457	914	1148	1069	226	362	1114	825	393
D	1128	457	1143	1144	1065	226	362	1262	972	464
E	1387	508	1397	1360	1282	297	487	1521	1232	584
H	1703	508	1651	1499	1420	297	639	1836	1547	742
K	1972	686	1905	1650	1571	297	639	2105	1816	870

- NOTES:  
 1. Clearance above cabinet is 24 inches (610 mm).  
 2. All dimensions shown in inches.

Fig. 2 — 62EB-62EK Vertical Unit Cabinet Dimensions



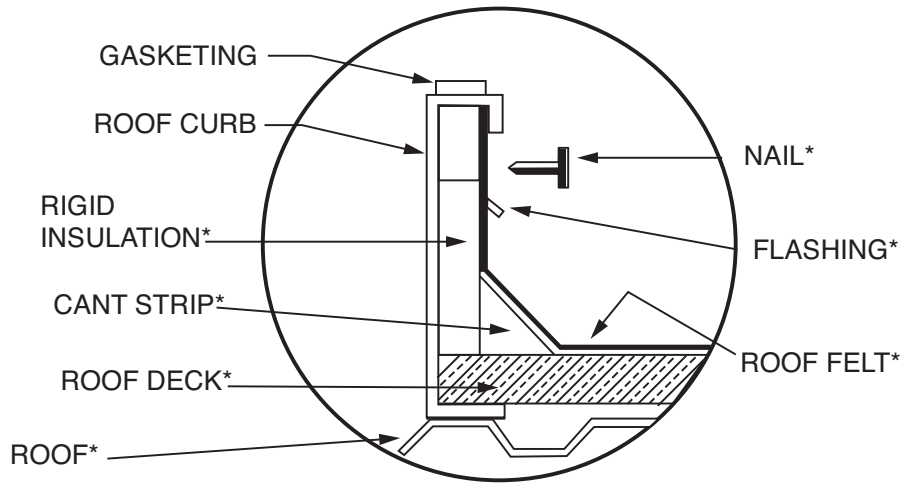


62E UNIT TYPE	DIMENSIONS (in.)									
	A	B	C	H	I	J	K	L	M	N
L	82.750	30.000	85.000	85.536	76.471	36.985	69.500	66.396	85.076	92.747
M	89.750	30.000	95.000	92.536	83.471	40.485	70.500	67.396	92.076	99.747
N	95.750	30.000	97.000	98.536	89.471	43.485	71.500	68.396	98.076	105.747
P	100.750	32.000	105.000	103.536	94.471	45.985	74.910	71.806	103.076	110.747
R	108.750	32.000	115.000	111.536	102.471	49.985	74.910	71.806	111.076	118.747
S	112.750	32.000	115.000	115.536	106.471	51.985	78.910	75.806	115.076	122.747
T	119.750	32.000	122.000	122.536	113.471	55.485	84.490	81.386	122.076	129.747
U	125.625	32.000	125.000	130.875	119.495	58.497	86.510	83.405	127.971	135.727

62E UNIT TYPE	DIMENSIONS (mm)									
	A	B	C	H	I	J	K	L	M	N
L	2102	762	2159	2173	1942	937	1765	1686	2161	2356
M	2280	762	2413	2350	2120	1028	1791	1712	2339	2534
N	2432	762	2464	2503	2273	1105	1816	1737	2491	2686
P	2559	813	2667	2630	2400	1168	1903	1824	2618	2813
R	2762	813	2921	2833	2603	1270	1903	1824	2821	3016
S	2864	813	2921	2935	2704	1320	2004	1925	2923	3118
T	3042	813	3099	3112	2882	1409	2146	2067	3101	3296
U	3191	813	3175	3324	3035	1486	2197	2118	3250	3447

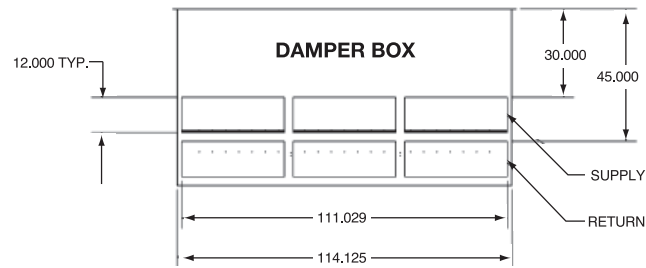
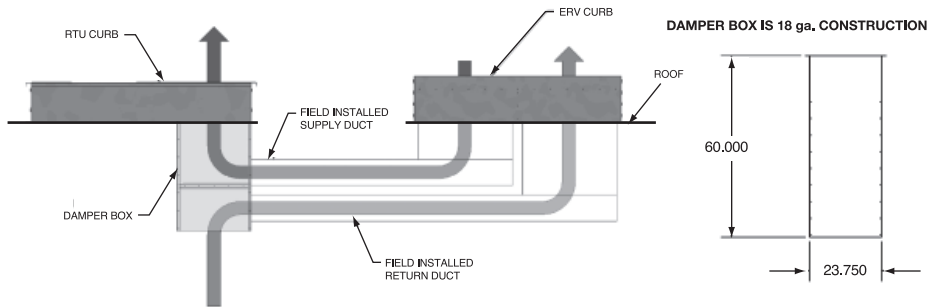
- NOTES:  
 1. Clearance above cabinet is 36 inches (915 mm).  
 2. All dimensions shown in inches.

**Fig. 3 — 62EL-62EU Unit Cabinet Dimensions**



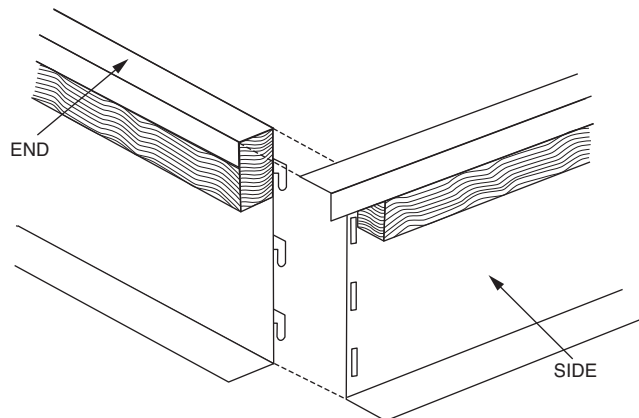
\*Field provided.

**Fig. 4 — Roofing Materials — Recommendation**

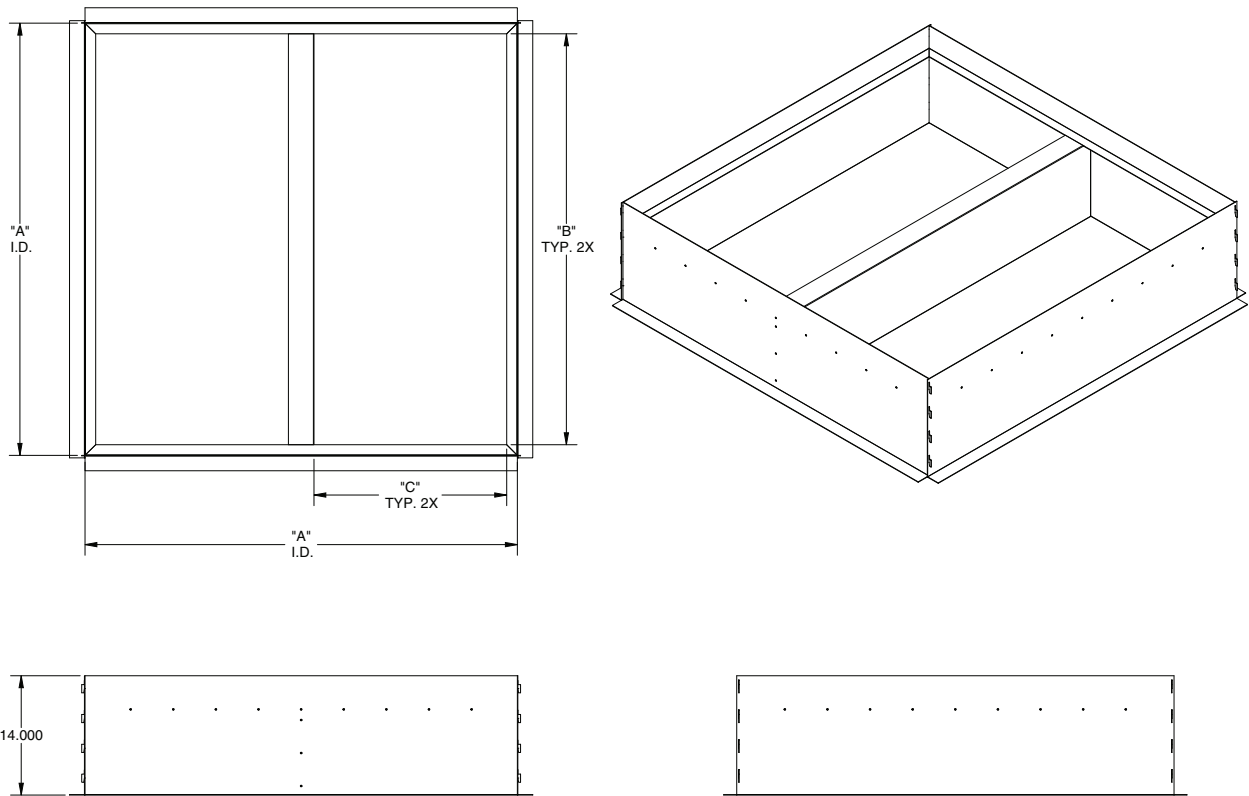


NOTE: All dimensions shown in inches.

**Fig. 5 — Typical Installation with Drop-in Damper Box**



**Fig. 6 — Assembling the Roof Curb**



**NOTES:**

1. All dimensions shown in inches.
2. Nailer sits even with top of curb. Do not cover any existing holes with nailer.

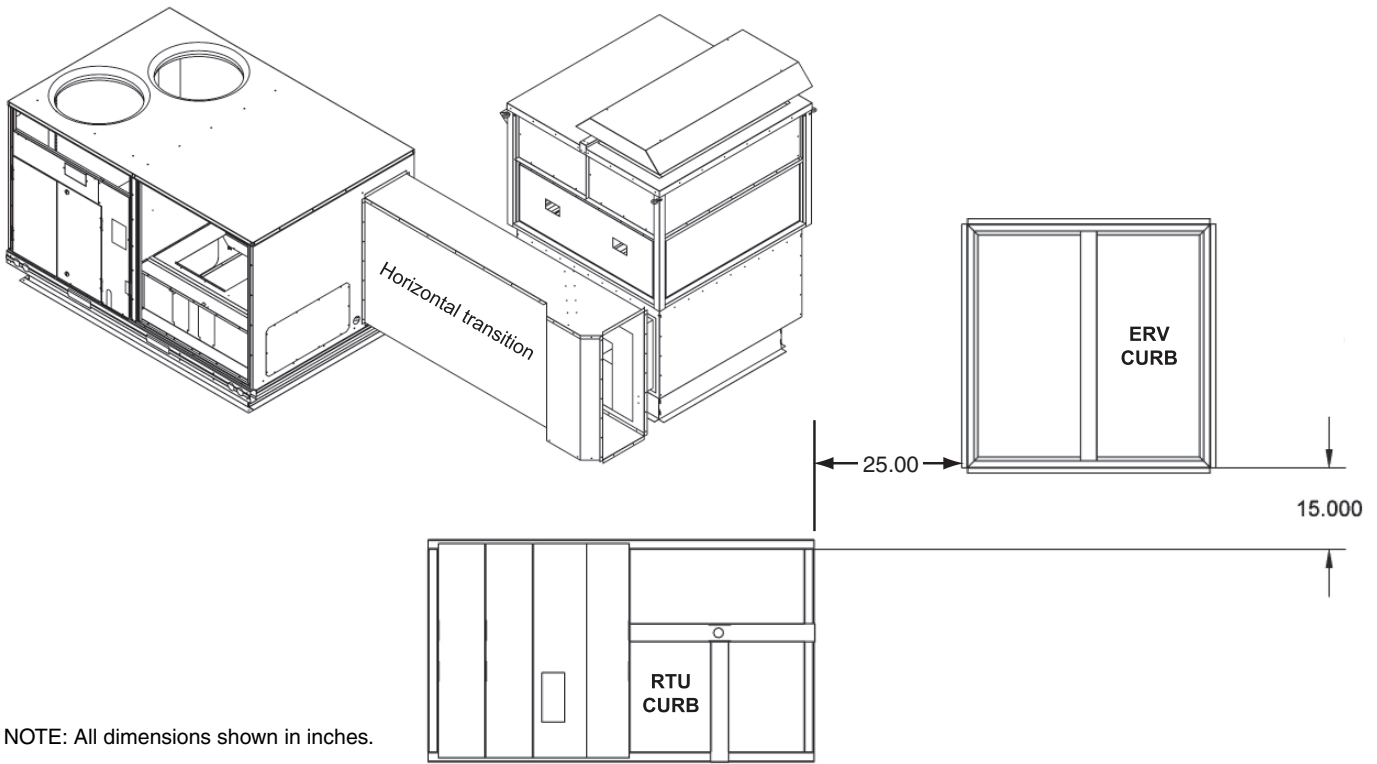
62E UNIT TYPE	DIMENSION A (in.)	DIMENSION B (in.)	DIMENSION C (in.)
B	27.221	24.721	10.861
C	34.721	32.221	14.611
D	40.521	38.021	17.511
E	50.721	48.221	22.611
H	63.141	60.641	28.821
K	73.721	71.221	34.111
L	78.721	76.221	36.611

62E UNIT TYPE	DIMENSION A (in.)	DIMENSION B (in.)	DIMENSION C (in.)
M	85.721	83.221	40.111
N	91.721	89.221	43.111
P	96.721	94.221	45.611
R	104.721	102.221	49.611
S	108.721	106.221	51.611
T	115.721	113.221	55.111
U	121.721	119.221	58.111

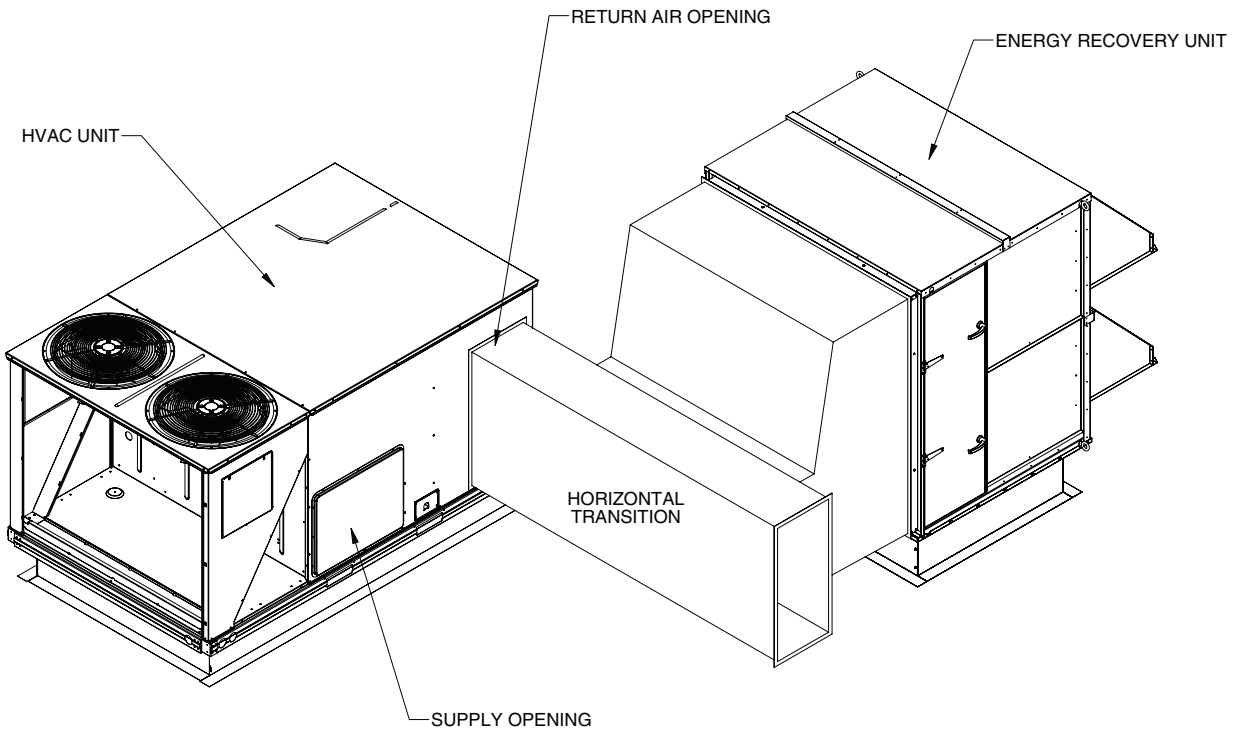
62E UNIT TYPE	DIMENSION A (mm)	DIMENSION B (mm)	DIMENSION C (mm)
B	691	628	276
C	882	818	371
D	1029	966	445
E	1288	1225	574
H	1604	1540	732
K	1873	1809	866
L	2000	1936	930

62E UNIT TYPE	DIMENSION A (mm)	DIMENSION B (mm)	DIMENSION C (mm)
M	2177	2114	1019
N	2330	2266	1095
P	2457	2393	1159
R	2660	2596	1260
S	2762	2698	1311
T	2939	2876	1400
U	3092	3028	1476

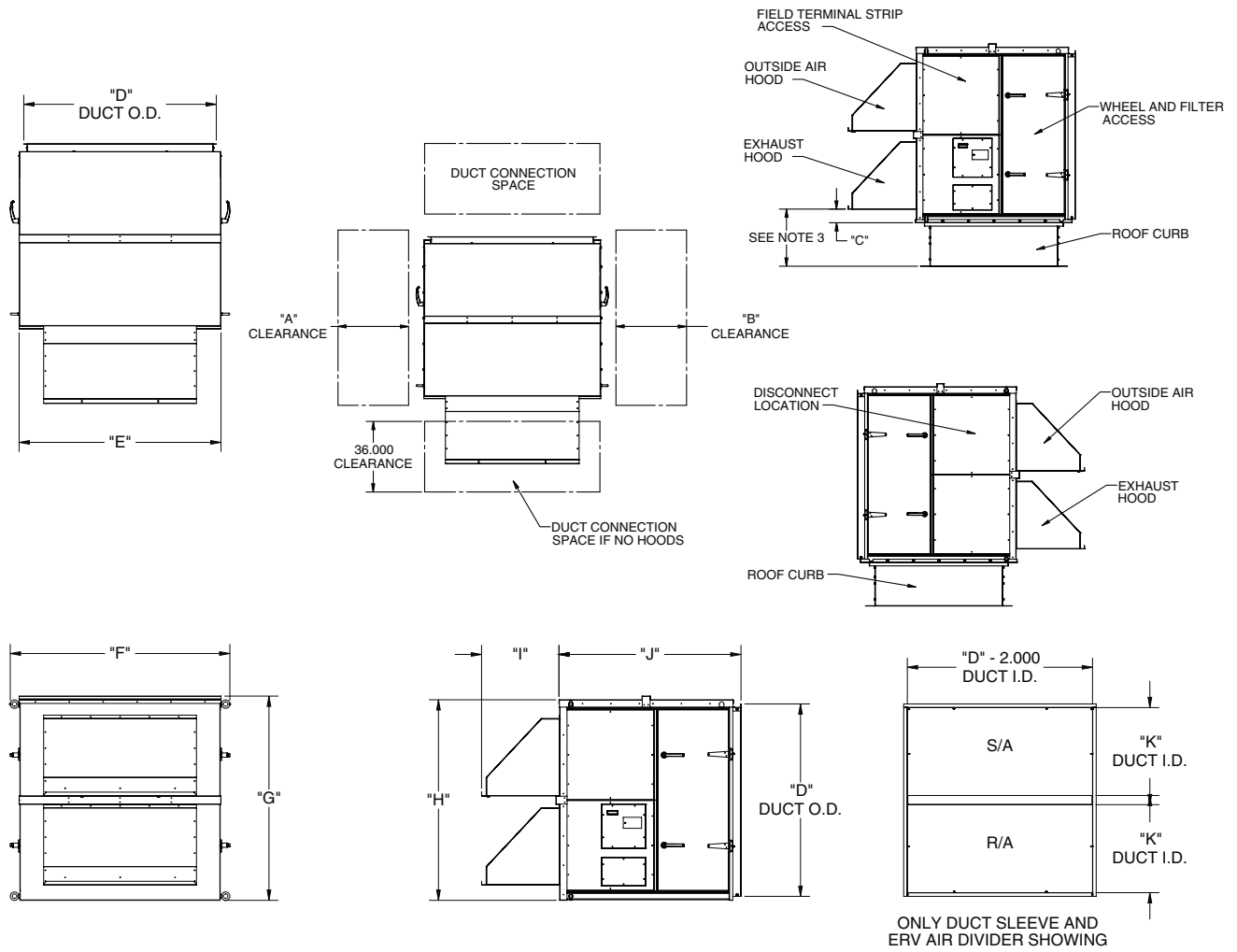
**Fig. 7 — 62EB-62EU Unit Curb Dimensions**



**Fig. 8 — Typical 62EB-EU Unit Installation with Horizontal Base and Horizontal Transition**



**Fig. 9 — Typical 62E2-E7 Unit Installation**



62E UNIT TYPE	DIMENSIONS (in.)										
	A	B	C	D	E	F	G	H	I	J	K
7	36.000	36.000	1.869	28.995	31.734	36.375	32.176	31.186	11.984	36.905	12.813
2	18.000	36.000	1.179	36.495	39.171	43.875	39.663	38.673	16.215	41.239	16.497
3	18.000	40.000	3.795	42.295	44.847	49.675	45.463	44.473	16.215	41.099	19.272
4	18.000	50.000	4.238	52.495	55.066	59.875	55.673	54.673	21.132	49.631	23.997
5	24.000	64.000	4.516	64.915	67.486	72.295	68.093	67.093	27.131	53.013	30.207
6	18.000	75.000	9.542	75.495	78.066	82.875	78.673	77.673	27.131	58.963	35.247

62E UNIT TYPE	DIMENSIONS (mm)										
	A	B	C	D	E	F	G	H	I	J	K
7	914	914	47	736	806	924	817	792	304	937	325
2	457	914	30	927	995	1114	1007	982	412	1047	419
3	457	1016	96	1074	1139	1262	1155	1130	412	1044	490
4	457	1270	108	1333	1399	1521	1414	1389	537	1261	610
5	610	1626	115	1649	1714	1836	1730	1704	689	1347	767
6	457	1905	242	1918	1983	2105	1998	1973	689	1498	895

NOTES:

1. Clearance above cabinet is 24 in. (610 mm).
2. Dimensions are in inches.
3. Size the roof curb to allow for a clearance of 10-in. (254 mm) (minimum) between the bottom of the exhaust hood and the top of the insulated roof material.

Fig. 10 — 62E2-62E7 Unit Cabinet Dimensions

**ASSEMBLE THE ROOF CURB** — Connect the curb side and the curb end. Insert the tabs on the curb end into the slots on the curb sides. See Fig. 6. Press firmly until the pieces lock in to place. It may be necessary to exert additional force to the top of the curb to lock the pieces in place. Ensure the curb pieces are locked together prior to proceeding. Repeat for other corners of the roof curb. See Fig. 7 and 11 for roof curb dimensions.

**NOTE:** If lifting or moving the roof curb assembly hammer the tabs over 90 degrees.

**SET THE ROOF CURB** — Fit the roof curb assembly by measuring across the corners of the curb to ensure a square fit. Level the curb by placing shims under the bottom flange of the curb. Secure the curb in place by welding or fastening the curb to the roof.

**INSTALL ROOFING MATERIALS** — Insulate and add a cant strip to the roof curb. Follow suggested and acceptable roofing procedures for applying roofing materials. The roofing material should extend up to the wood nailer and be secured under the counter flashing. Follow all local, national, and industry roofing standards. Refer to Fig. 4 for roofing recommendations.

**INSTALL THE HORIZONTAL BASE (62EB-EU UNITS ONLY)** — Remove the fork pockets from the bottom of the horizontal base. After removing the fork pockets from the bottom of the horizontal base place the base on the roof curb. Secure the horizontal base to the curb using no. 14, 2-in. self-tapping sheet metal screws.

Apply the factory provided gasketing material to the top of the horizontal base. Follow the rigging directions in the Step 6 — Rig and Place Unit section to place the ERV on the horizontal base. Position the ERV so that the ERV's LCD display is on the opposite side of the horizontal base's duct openings. Secure the ERV to the horizontal base using 1-in. self-tapping sheet metal screws every 18 in. around the perimeter.

**NOTE:** The ERV may also be mounted to the horizontal base prior to being set on the roof curb.

**INSTALL THE HORIZONTAL TRANSITION** — Apply the factory-provided gasketing material to the horizontal transition at all points where duct connections are made. Attach the horizontal transition to the horizontal base (62EB-EU units) or the ERV (62E2-E7 units) and RTU return connection using 1-in. self-tapping sheet metal screws. Ensure that all connections are water and air tight.

## Step 5 — Install Standard Roof Curb

**VERTICAL STAND-ALONE APPLICATIONS (62EB-EU UNITS)** — The ERV unit can be installed without being coupled with a RTU. The ERV units can be installed in one of two stand-alone applications: vertical discharge or horizontal discharge. Vertical discharge requires the use of a standard roof curb. When installing a stand-alone ERV in a vertical application complete the following steps:

**Locate the Roof Curb** — Prior to locating the roof curb consider the structural support required for the rooftop system and, the duct drop location in relation to the joists. Allow sufficient space for service, clearance, and locations of vents or other sources of air. Refer to Fig. 2 and 3 for ERV clearance requirements.

**Assemble the Roof Curb** — Connect the curb side and the curb end. Insert the tabs on the curb end into the slots on the curb sides. See Fig. 6. Press firmly until the pieces lock into place. It may be necessary to exert additional force to the top of the curb to lock the pieces in place. Ensure the curb pieces are locked together prior to proceeding. Repeat for all corners of the roof curb.

**Prepare Roof Curb Location** — Cut a hole in the roof for duct openings. See Fig. 7 for duct opening dimensions. Frame the opening to provide adequate structural support.

**Set the Roof Curb** — Fit the roof curb assembly by measuring across the corners of the curb to ensure a square fit. Set the roof curb over the roof opening. Level the curb by placing shims under the bottom flange of the curb. Secure the curb in place by welding or fastening the curb to the roof.

**Install Ductwork** — Ductwork will be installed in the roof curb for vertical discharge stand-alone applications. The duct will hang from the top of the curb. Refer to Fig. 7 to determine the duct size required. Provide field manufactured duct and place into the supply and return openings in the curb.

**NOTE:** Ductwork must be installed in the ERV curb before the ERV unit is set in place.

**Install Gaskets** — The ERV roof curbs come with a gasketing package to provide a seal between the ERV unit and the top perimeter of the roof curb. Install the gasket around the top perimeter of the curb and around the supply and return opening.

**Install Roofing Materials** — Insulate and add a cant strip to the roof curb. Follow suggested and acceptable roofing practices for applying roofing materials. The roofing material should extend up to the wood nailer and be secured under the counterflashing. Follow all local, national, and industry roofing standards. Refer to Fig. 4 for roofing recommendations.

**HORIZONTAL STAND-ALONE APPLICATIONS (62EB-EU and 62E2-E7 Units)** — The ERV unit can be installed without being coupled with a RTU. The ERV units can be installed in one of two stand-alone applications: vertical discharge or horizontal discharge. Horizontal discharge with a 62EB-EU units requires the use of the horizontal base accessory. The horizontal base accessory include a horizontal discharge box and a roof curb to support the box. The horizontal base accessory is not required with 62E2-E7 units.

When installing a stand-alone ERV in a horizontal application complete the following steps:

**Locate the Roof Curb** — Prior to locating the roof curb consider the structural support required for the rooftop system. Allow sufficient space for service, clearance, and locations of vents or other sources of air. Refer to Fig. 2, 3, and 10 for ERV clearance requirements.

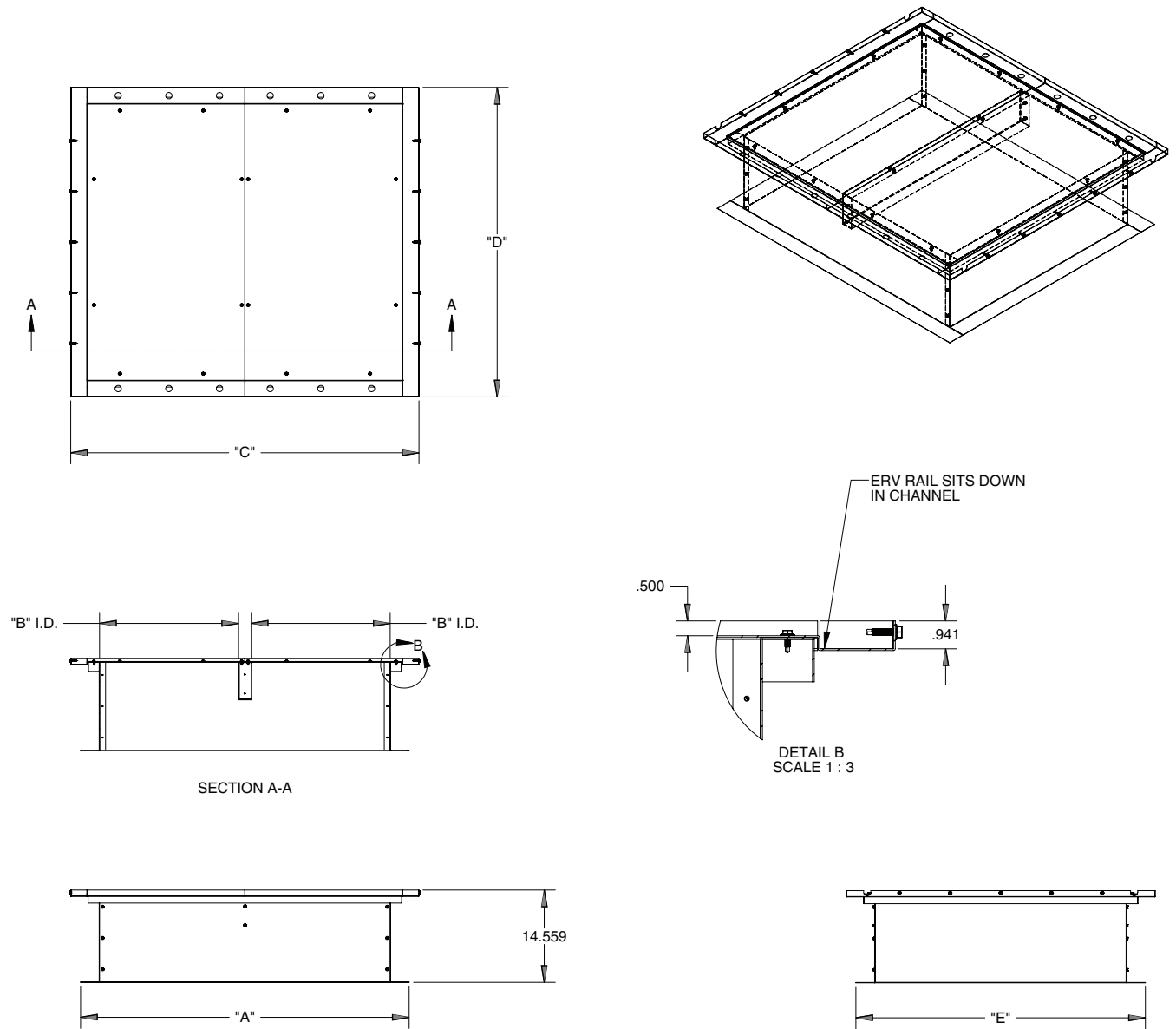
**Assemble the Roof Curb** — Connect the curb side and the curb end. Insert the tabs on the curb end into the slots on the curb sides. See Fig. 6. Press firmly until the pieces lock into place. It may be necessary to exert additional force on top of the curb to lock the pieces in place. Ensure the curb pieces are locked together prior to proceeding further. Repeat for other corners of the roof curb. See Fig. 7 and 11 for roof curb dimensions.

**NOTE:** If lifting or moving the roof curb assembly, hammer the tabs over 90 degrees.

**Set the Roof Curb** — Fit the roof curb assembly by measuring across the corners of the curb to ensure a square fit. Level the curb by placing shims under the bottom flange of the curb. Secure the curb in place by welding or fastening the curb to the roof.

**Install Roofing Materials** — Insulate and add a cant strip to the roof curb. Follow suggested and acceptable roofing procedures for applying roofing materials. The roofing material should extend up to the wood nailer and be secured under the counter flashing. Follow all local, national, and industry roofing standards. Refer to Fig. 4 for roofing recommendations.

**Install the Horizontal Base (62EB-EU Units Only)** — Remove the fork pockets from the bottom of the horizontal base. After removing the fork pockets, place the base on the roof curb. Secure the horizontal base to the curb using no. 14, 2-in. self-tapping sheet metal screws.



62E UNIT TYPE	DIMENSIONS (in.)				
	A	B	C	D	E
7	28.286	10.143	31.397	36.927	33.816
2	35.882	13.941	38.993	40.446	37.335
3	41.682	16.841	44.793	40.306	37.195
4	51.882	21.941	54.993	48.826	45.715
5	64.302	28.151	67.413	54.286	51.175
6	74.882	33.441	77.993	60.236	57.125

62E UNIT TYPE	DIMENSIONS (mm)				
	A	B	C	D	E
7	718	258	797	938	859
2	911	354	990	1027	948
3	1059	428	1138	1024	945
4	1318	557	1397	1240	1161
5	1633	715	1712	1379	1300
6	1902	849	1981	1530	1451

NOTE: Dimensions are in inches.

**Fig. 11 — 62E2-62E7 Unit Roof Curb Dimensions**

Apply the factory provided gasketing material to the top of the horizontal base. Follow the rigging directions in the Step 6 — Rig and Place Unit section to place the ERV on the horizontal base. Position the ERV so that the ERV's LCD (liquid crystal diode) display is on the opposite side of the horizontal base's duct openings. Secure the ERV to the horizontal base using 1-in. self-tapping sheet metal screws every 18 in. around the perimeter.

NOTE: The ERV may also be mounted to the horizontal base prior to being set on the roof curb.

**Install Ductwork** — Ductwork will be connected to the horizontal box (62EB-EU units) or directly to the ERV (62E2-E7 units) for stand-alone horizontal discharge and exhaust applications. See Fig. 12 for the horizontal box connection dimensions. See Fig. 10 for 62E2-E7 connection dimensions. Do not support the duct from the horizontal box. Provide field

manufactured duct and attach to the supply and exhaust openings on the horizontal box.

**Step 6 — Rig and Place Unit** — To transfer the unit from the shipping platform to the storage or installation site, refer to the rigging label on the unit and these instructions.

**⚠ CAUTION**

All panels must be in place when rigging. Unit is not designed for handling by fork truck. Damage to unit may result.

Refer to Tables 1A and 1B for ERV unit weights. Check lifting devices for capacity constraints.

Hook rigging shackles through the eyehooks in the ERV unit. Connect lifting straps and spreader bars. See Fig 13.

Spreader bars must be positioned to prevent cables from rubbing against the ERV unit.

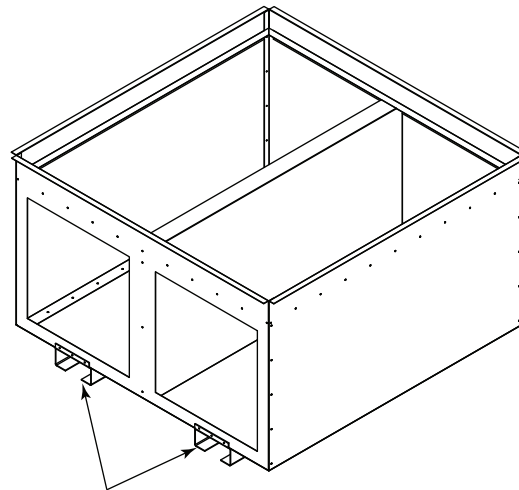
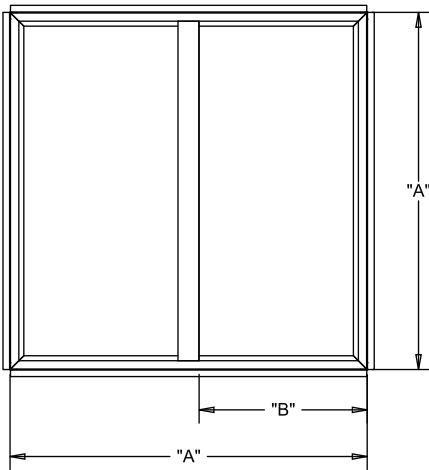
**⚠ WARNING**

Never attempt to lift the ERV in any way that does not use all four (4) eyehooks. Lifting the unit with an uneven distribution of the weight may cause damage to the unit and/or personal injury or death.

**IMPORTANT:** Remove the fork pockets from the ERV unit before setting it on the roof curb.

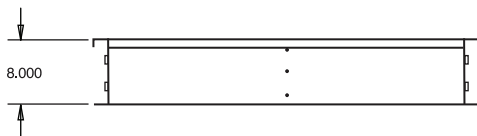
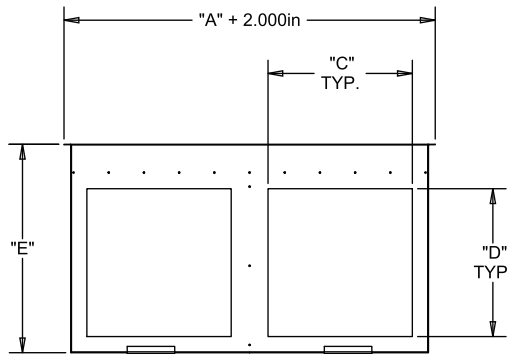
Carefully lift the ERV unit and set on ERV roof curb. Do not drop the ERV unit onto the roof curb, as damage may occur. Avoid twisting or uneven lifting of the unit. Never lift the unit by the hoods or any means other than the provided lifting holes or eyes.

HORIZONTAL BOX



FORK POCKETS (REMOVE BEFORE INSTALLING ON CURB)

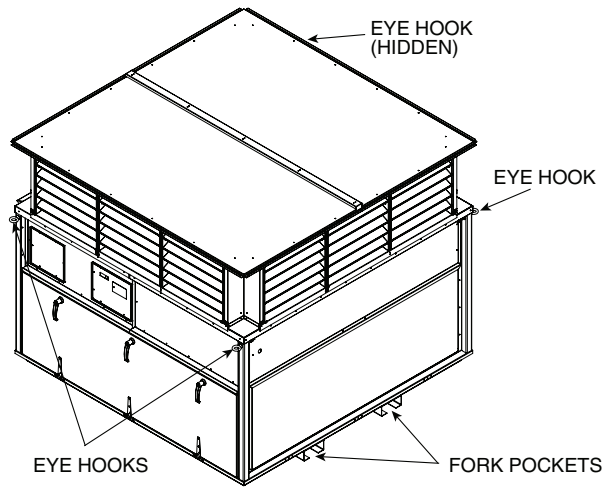
HORIZONTAL BOX  
BASE ROOF CURB



62E UNIT TYPE	DIMENSIONS (in.)				
	A	B	C	D	E
B	27.221	12.111	8.750	14.000	22.604
C	34.721	15.861	12.500	14.000	22.604
D	40.521	18.761	15.400	18.000	26.600
E	50.721	23.861	20.500	21.000	29.604
H	63.141	30.071	26.710	24.000	32.604
K	72.721	34.861	31.500	26.022	34.637
L	78.721	37.861	34.500	26.022	34.637
M	85.721	41.361	38.000	26.022	34.637
N	91.721	44.361	41.000	31.011	39.615
P	96.721	46.861	43.500	33.052	41.682
R	104.721	50.861	47.500	33.052	41.682
S	108.721	52.861	49.500	35.110	43.769
T	115.721	56.361	53.000	35.110	43.769
U	115.721	56.361	53.000	35.110	43.769

**Fig. 12 — 62EB-62EU Unit Horizontal Discharge Box Dimensions**





**Fig. 13 — Rigging and Handling**

**Step 7 — Make Electrical Connections**

**⚠ WARNING**

Prior to performing service or maintenance operations on the ERV unit, turn off and disconnect all power switches to the unit. Be aware that there may be more than one disconnect switch. Electrical shock could cause serious personal injury or death.

**IMPORTANT:** Only trained, qualified installers and service technicians should install, wire, start-up and service equipment.

**POWER SUPPLY** — The electrical characteristics of the available power supply must agree with the unit nameplate rating. Supply voltage must be within the limits shown. See Tables 3-5 for electrical and configuration data.

**ELECTRICAL CONNECTIONS** — The ERV unit must have its own electrical disconnect box. If the disconnect option has not been ordered from the factory, it must be field supplied and installed per local codes. See Tables 3-5.

If the ERV unit has an electric pre-heater factory installed, it will be wired through the ERV unit disconnect.

**Low Voltage Wiring** — Wire low voltage per Fig. 14. The field connection terminal strip is located behind the panel that is adjacent to the control box. The correct panel is marked with a green label stating “Attention: For field control of ERV, remove this panel to gain access to ERV field control terminal strip.” The wires connecting to the field terminal strip can be routed through the nearest 3/4-in. hole and through conduit to the RTU, or they can be routed down the sidewall of the cabinet using the wire pull provided and routed through the combination curb to the RTU.

**⚠ CAUTION**

When routing wires in the ERV always keep them away from moving parts and sharp metal edges. Follow all local and state codes when routing the ERV control wires.

If the ERV unit is mated to a RTU, terminals C and G on the field control terminal strip of the ERV unit are connected to the corresponding terminals on the RTU cabinet. Verify the jumper is removed from the “ERV R” and “G” terminals; not doing so may damage RTU control equipment.

When the ERV is to be run as a stand-alone configuration, verify that a jumper is shorting the “ERV R” and “G” terminals

on the ERV field control terminal strip. This will enable the ERV to turn on and run.

If the HVAC unit has an integrated economizer or power exhaust, it is sometimes necessary to provide an interface between the HVAC unit and the ERV controls to ensure proper operation of the ERV’s supply/exhaust fan and energy recovery wheel motors. The 62E has discrete inputs for this purpose and damper end switches or relays may be used to coordinate the economizer and power exhaust operation with the ERV.

When an ERV is mated to an electro-mechanical rooftop unit with an economizer and a power exhaust, terminals C and G on the ERV field control terminal strip are still connected to the corresponding terminals on the rooftop unit cabinet (jumper across R and G needs to be removed). However, in addition, field supplied and installed end switches are required to coordinate operation with the unit. For unit economizer operation, it is necessary to install a Normally Open end switch (field provided) on the economizer actuator and connect to terminals 5 and 6 (ERV Shutdown) on the ERV terminal strip. This will cause the ERV to shut down during unit economizer operation. For power exhaust, based on building pressure control, no additional ERV wiring is required, however if the ERV is to provide power exhaust functionality then a field-installed Normally Closed end switch is required to be installed between terminals 7 and 8 on the ERV terminal strip.

**High Voltage Wiring** — Connect high voltage wiring to the disconnect, see Fig. 14. Route the power wires in water tight conduit from the disconnect switch box to the ERV distribution block. To gain access to high voltage block, remove panel marked with label stating, “High voltage terminal block located behind this panel.”

**Table 3 — ERV Wheel Motor and Control Transformer Electrical Data**

UNIT	UNIT V-Ph	ERV WHEEL MOTOR			CONTROL TRANSFORMER	
		V-Ph	W	FLA	V	FLA
62EB,E7	115-1	115-1	80.5	0.70	75	0.65
	230-1	230-1	69.0	0.30	75	0.33
	230-3	230-1	69.0	0.30	75	0.33
	400-3	230-1	69.0	0.15	75	0.16
	460-3	230-1	69.0	0.15	75	0.16
62EC,E2	575-3	230-1	69.0	0.12	75	0.13
	230-1	230-1	69.0	0.30	75	0.33
	230-3	230-1	69.0	0.30	75	0.33
	400-3	230-1	69.0	0.15	75	0.16
	460-3	230-1	69.0	0.15	75	0.16
62ED,E3	575-3	230-1	69.0	0.12	75	0.13
	230-3	230-1	69.0	0.30	75	0.33
	400-3	230-1	69.0	0.15	75	0.16
	460-3	230-1	69.0	0.15	75	0.16
	575-3	230-1	69.0	0.12	75	0.13
62EE,E4	230-3	230-3	138.3	1.04	75	0.33
	400-3	460-3	138.3	0.52	75	0.16
	460-3	460-3	138.3	0.52	75	0.16
	575-3	575-3	99.7	0.30	75	0.13
	230-3	230-3	99.7	0.75	75	0.33
62EH,E5	400-3	460-3	101.0	0.38	75	0.16
	460-3	460-3	101.0	0.38	75	0.16
	575-3	575-3	99.7	0.30	75	0.13
	230-3	230-3	332.4	2.50	75	0.33
	400-3	460-3	319.1	1.20	75	0.16
62EK,EL,EM,EN,EP,E6	460-3	460-3	319.1	1.20	75	0.16
	575-3	575-3	315.8	0.95	75	0.13
	230-3	230-3	452.0	3.40	75	0.33
	400-3	460-3	452.0	1.70	75	0.16
	460-3	460-3	452.0	1.70	75	0.16
62ER,ES,ET,EU	575-3	575-3	465.3	1.40	75	0.13

**LEGEND**

**FLA** — Full Load Amps      **W** — Watts

**Table 4 — Supply and Exhaust Fans Electrical Data**

FAN OPTION	62E CHASSIS	UNIT V-Ph	FAN MOTOR			
			V-Ph	W	FLA	Qty
A	B,7	115-1	115-1	455	3.96	1
		230-1	230-1	400	1.74	1
		230-3	230-1	400	1.74	1
		460-3	200-1	400	0.87	1
		460-3	230-1	400	0.87	1
		575-3	230-1	400	0.70	1
B	B,7	115-1	115-1	455	3.96	2
		230-1	115-1	455	1.98	2
		230-3	115-1	455	1.98	2
		400-3	115-1	455	0.99	2
		460-3	115-1	455	0.99	2
		575-3	115-1	455	0.79	2
C	C,2	230-1	230-1	395	1.72	1
		230-3	230-3	880	2.21	1
		400-3	460-3	880	1.11	1
		460-3	460-3	880	1.11	1
	D,E,3,4	575-3	460-3	880	0.88	1
		230-3	230-3	880	2.21	1
		400-3	460-3	880	1.11	1
		460-3	460-3	880	1.11	1
E	E,H,K,4,5,6	575-3	460-3	880	0.88	1
		230-3	230-3	2700	6.79	1
		400-3	460-3	2700	3.39	1
		460-3	460-3	2700	3.39	1
F	H,K,L,M,N,P,4,6	575-3	460-3	2700	2.71	1
		230-3	230-3	2700	6.79	2
		400-3	460-3	2700	3.39	2
		460-3	460-3	2700	3.39	2
G	L,M,N,P,R	575-3	460-3	2700	2.71	2
		230-3	230-3	2700	6.79	3
		400-3	460-3	2700	3.39	3
		460-3	460-3	2700	3.39	3
H	R,S,T,U	575-3	460-3	2700	2.71	3
		230-3	230-3	2700	6.79	4
		400-3	460-3	2700	3.39	4
		460-3	460-3	2700	3.39	4
J	R,S,T,U	575-3	460-3	2700	2.71	4
		230-3	230-3	2700	6.79	5
		400-3	460-3	2700	3.39	5
		460-3	460-3	2700	3.39	5
K	S,T,U	575-3	460-3	2700	2.71	5
		230-3	230-3	2700	6.79	6
		400-3	460-3	2700	3.39	6
		460-3	460-3	2700	3.39	6
L	H,K,L	575-3	460-3	2700	2.71	6
		230-3	230-3	2900	7.29	1
		400-3	460-3	2900	3.64	1
		460-3	460-3	2900	3.64	1
		575-3	460-3	2900	2.92	1

LEGEND

FLA — Full Load Amps  
 Qty — Quantity  
 W — Watts

**Table 4 — Supply and Exhaust Fans Electrical Data (cont)**

FAN OPTION	62E CHASSIS	UNIT V-Ph	FAN MOTOR			
			V-Ph	W	FLA	Qty
M	K,L,M, N,P,R	230-3	230-3	2900	7.29	2
		400-3	460-3	2900	3.64	2
		460-3	460-3	2900	3.64	2
		575-3	460-3	2900	2.92	2
N	R,S, T,U	230-3	230-3	2900	7.29	3
		400-3	460-3	2900	3.64	3
		460-3	460-3	2900	3.64	3
		575-3	460-3	2900	2.92	3
P	T,U	230-3	230-3	2700	6.79	7
		400-3	460-3	2700	3.39	7
		460-3	460-3	2700	3.39	7
		575-3	460-3	2700	2.71	7
R	T,U	230-3	230-3	2700	6.79	8
		400-3	460-3	2700	3.39	8
		460-3	460-3	2700	3.39	8
		575-3	460-3	2700	2.71	8

LEGEND

FLA — Full Load Amps  
Qty — Quantity  
W — Watts

**Table 5 — Electric Heat Electrical Data**

HEATER		UNIT AND HEATER V-Ph	62E CHASSIS
kW	FLA		
2	17.39	115-1	B,7
	8.70	230-1	B,C,2,7
	5.03	230-3	B,C,D,E,2,3,4,7
	2.51	400-3	B,C,D,E,2,3,4,7
	2.51	460-3	B,C,D,E,2,3,4,7
	2.01	575-3	B,C,D,E,2,3,4,7
5	43.48	115-1	B,7
	21.74	230-1	B,C,2,7
	12.57	230-3	B,C,D,E,H,2,3,4,5,7
	6.28	400-3	B,C,D,E,H,2,3,4,5,7
	6.28	460-3	B,C,D,E,H,2,3,4,5,7
	5.03	575-3	B,C,D,E,H,2,3,4,5,7
8	20.11	230-3	D,E,H,3,4,5
	10.05	400-3	D,E,H,3,4,5
	10.05	460-3	D,E,H,3,4,5
	8.04	575-3	D,E,H,3,4,5
10	25.13	230-3	E,H,K,L,4,5,6
	12.57	400-3	E,H,K,L,4,5,6
	12.57	460-3	E,H,K,L,4,5,6
	10.05	575-3	E,H,K,L,4,5,6
15	37.70	230-3	H,K,L,M,N,5,6
	18.85	400-3	H,K,L,M,N,5,6
	18.85	460-3	H,K,L,M,N,5,6
	15.08	575-3	H,K,L,M,N,5,6
20	50.26	230-3	H,K,L,M,N,P,5,6
	25.13	400-3	H,K,L,M,N,P,5,6
	25.13	460-3	H,K,L,M,N,P,5,6
	20.11	575-3	H,K,L,M,N,P,5,6

LEGEND

FLA — Full Load Amps  
W — Watts

**Table 5 — Electric Heat Electrical Data (cont)**

HEATER		UNIT AND HEATER V-Ph	62E CHASSIS
kW	FLA		
25	62.83	230-3	H,K,L,M,N,PR,S,5,6
	31.42	400-3	H,K,L,M,N,PR,S,5,6
	31.42	460-3	H,K,L,M,N,PR,S,5,6
	25.13	575-3	H,K,L,M,N,PR,S,5,6
30	75.40	230-3	K,L,M,N,PR,S,T,U,6
	37.70	400-3	K,L,M,N,PR,S,T,U,6
	37.70	460-3	K,L,M,N,PR,S,T,U,6
	30.16	575-3	K,L,M,N,PR,S,T,U,6
35	87.96	230-3	L,M,N,PR,S,T,U
	43.98	400-3	L,M,N,PR,S,T,U
	43.98	460-3	L,M,N,PR,S,T,U
	35.18	575-3	L,M,N,PR,S,T,U
40	100.53	230-3	M,N,PR,S,T,U
	50.26	400-3	M,N,PR,S,T,U
	50.26	460-3	M,N,PR,S,T,U
	40.21	575-3	M,N,PR,S,T,U
45	113.09	230-3	N,PR,S,T,U
	56.55	400-3	N,PR,S,T,U
	56.55	460-3	N,PR,S,T,U
	45.24	575-3	N,PR,S,T,U
50	125.66	230-3	PR,S,T,U
	62.83	400-3	PR,S,T,U
	62.83	460-3	PR,S,T,U
	50.26	575-3	PR,S,T,U
55	138.23	230-3	R,S,T,U
	69.11	400-3	R,S,T,U
	69.11	460-3	R,S,T,U
	55.29	575-3	R,S,T,U
60	150.79	230-3	S,T,U
	75.40	400-3	S,T,U
	75.40	460-3	S,T,U
	60.32	575-3	S,T,U
65	163.36	230-3	S,T,U
	81.68	400-3	S,T,U
	81.68	460-3	S,T,U
	65.34	575-3	S,T,U
70	175.92	230-3	S,T,U
	87.96	400-3	S,T,U
	87.96	460-3	S,T,U
	70.37	575-3	S,T,U
75	188.49	230-3	T,U
	94.24	400-3	T,U
	94.24	460-3	T,U
	75.40	575-3	T,U
80	201.06	230-3	U
	100.53	400-3	U
	100.53	460-3	U
	80.42	575-3	U
85	213.62	230-3	U
	106.81	400-3	U
	106.81	460-3	U
	85.45	575-3	U

LEGEND

FLA — Full Load Amps  
W — Watts

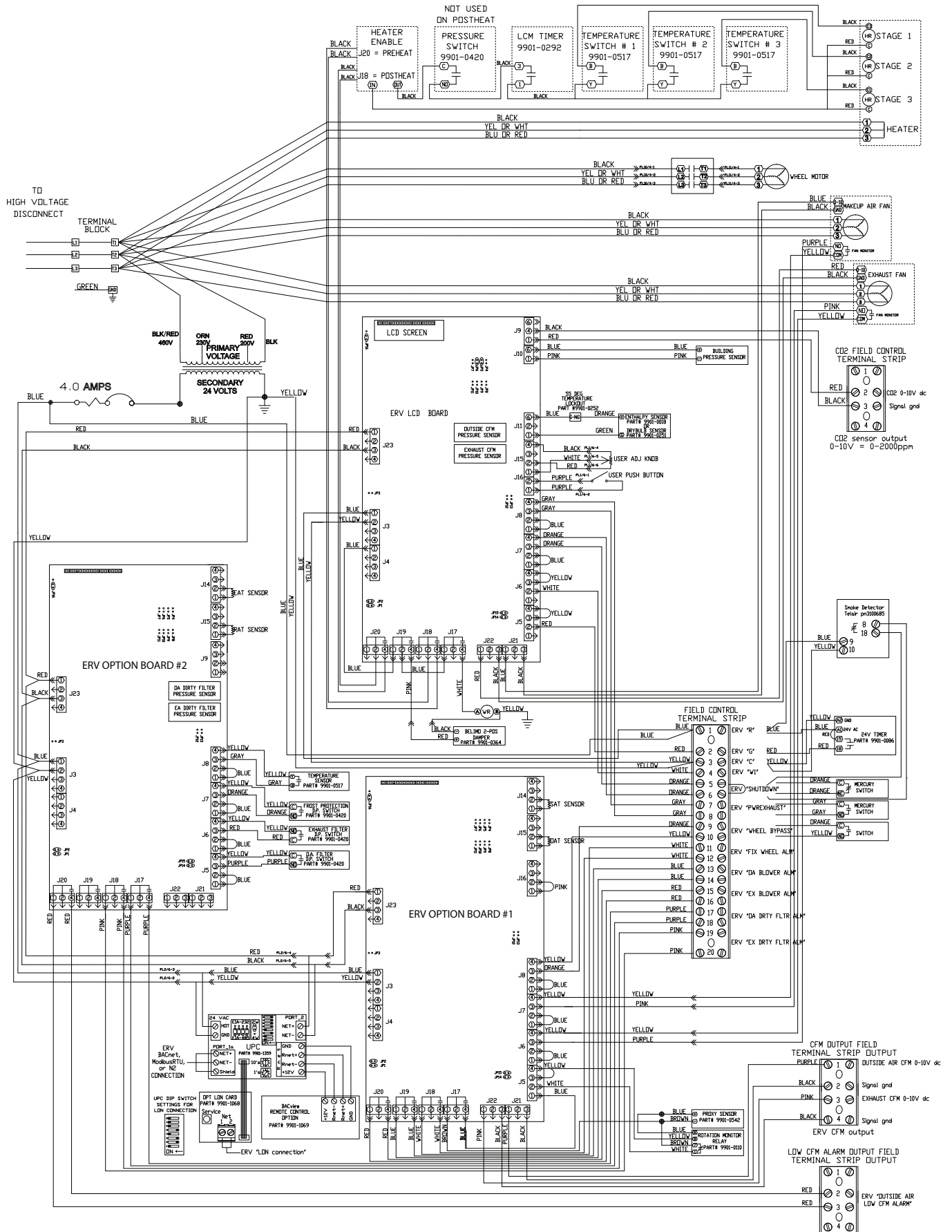


Fig. 14 — Typical Wiring Schematic

## START-UP

Use the following information to check unit PRIOR to start-up.

### ⚠ CAUTION

Before turning the disconnect switch on, verify that the voltage being provided to the ERV unit matches the voltage shown on the ERV nameplate. Failure to do so could result in equipment damage.

**Unit Preparation** — Check that the unit has been installed in accordance with these installation instructions and all applicable codes.

Check all fasteners and set screws for tightness. Verify that all of the panels are in place and secure. Verify that any openings to the ERV cabinet are clear of foreign materials.

**Internal Wiring** — Check all electrical connections in the control box. Tighten as required.

**Rain Hoods** — The outside air hood will include aluminum water entrainment filters, which should be in place prior to starting the unit.

### Energy Recovery Wheel

**DRIVE BELT** — Turn the energy recovery wheel by hand to verify free operation. Inspect the belt, which drives the energy wheel rotation. Make sure the belt rides smoothly through the pulley and over the wheel rim.

**AIR SEALS** — Check that the air seals located around the outside of the wheel and across the center, on both sides of the wheel, are secure and in good condition. Air seals which are too tight will prevent proper rotation of the energy recovery wheel.

Air seal clearance may be checked by placing a sheet of paper, like a feeler gage, against the wheel face. To adjust the air seals, loosen all eight seal retaining screws. These screws are located on the bearing support that spans the length of the

cassette through the wheel center. Tighten the screws so the air seals tug slightly on the sheet of paper as the wheel is turned. Re-check the air seals for tightness after adjustment.

Replace the access door and apply power. Check that the wheel rotates freely. If the wheel does not rotate or is binding, remove the cassette and adjust.

**For units with three phase power only:** Remove the service door to make sure the wheel is turning in the same direction as the sticker next to the motor shows. See Fig. 15. If the wheel is turning in the wrong direction turn, off the disconnect switch and have a qualified electrician swap any 2 of the power leads on the load side of the disconnect switch.

**Airflow Settings and Adjustments** — With the disconnect on, the display should show "ERV FAN SPEED" on the top line of the display. The bottom line of the display should show "OA=XXX EX=XXX" where the "X"s represent the blower output percentage for the outside air blowers and the exhaust air blowers.

**NOTE:** If any of the alarms are tripped, the LCD display will scroll between the alarms and the normal display.

To measure the airflow the ERV units have factory-installed airflow test ports, which allow the balancer of the job to easily measure the static pressure across the ERV wheel. The static pressure is measured on both the supply and return sides of the wheel. Take this pressure reading and match up the wheel differential pressure ( $\Delta P$ ) to pressure chart to display the cfm that is flowing through the ERV wheel. See Table 6.

To balance the airflow remove the small panel next to the control panel cover to access the user input controls. Press the push button and turn the knob clockwise to increase or counter-clockwise to decrease the outside air blower speed (use the test ports and charts described above to calculate cfm levels). Press the push button again to change the exhaust air blower speed. Press the button again to return to the main screen. Replace the user control cover when ERV cabinet is operating at the correct blower speeds.

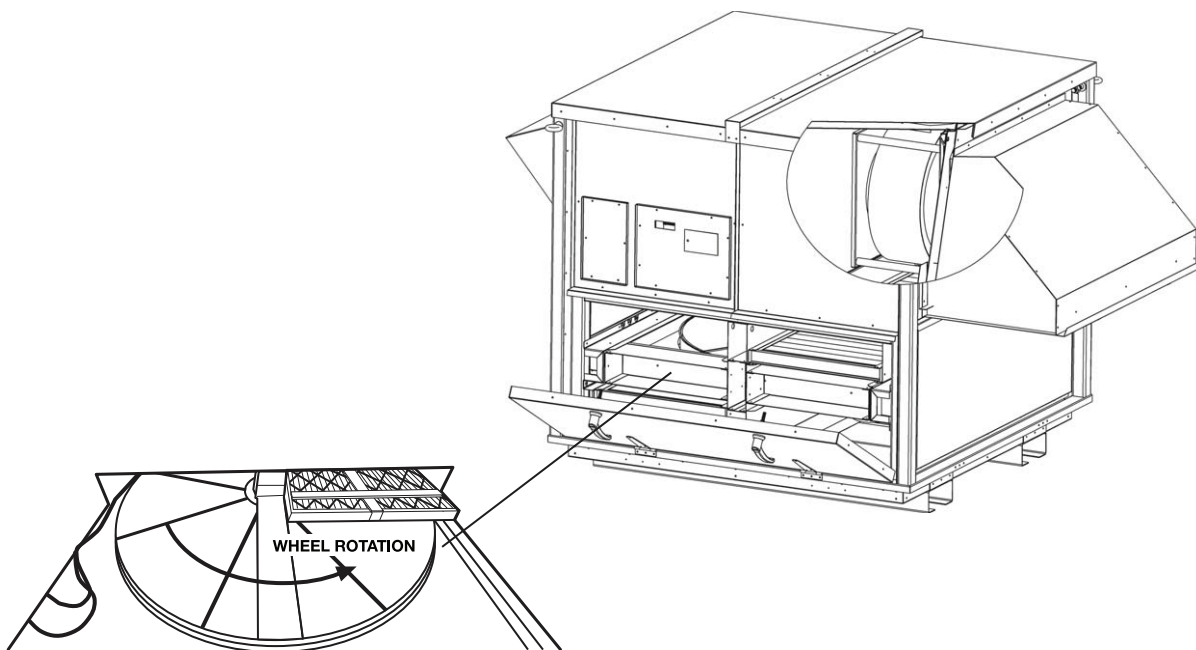


Fig. 15 — ERV Wheel Rotation

**Table 6 — Airflow vs. Pressure Drop Across ERV Wheel**

62E UNIT	AIRFLOW VS. PRESSURE DROP ACROSS ERV WHEEL																	
	l/s	94	118	142	165	189	212	236	260	283	307	330	354	378	—	—	—	—
BA,7A	pa	47	62	77	95	109	127	142	157	174	189	207	221	239	—	—	—	—
	l/s	94	118	142	165	189	212	236	260	283	307	330	354	378	401	425	—	—
BC,7C	pa	60	75	90	104	119	134	149	164	179	194	209	224	239	254	1.08	—	—
	l/s	236	260	283	307	330	354	378	401	425	448	472	496	519	543	—	—	—
CC,2C	pa	112	124	137	149	162	174	187	199	211	224	236	249	261	274	—	—	—
	l/s	189	212	236	260	283	307	330	354	378	401	425	448	472	496	519	543	—
CD,2D	pa	112	124	137	149	162	174	187	199	211	224	236	249	261	274	286	299	—
	l/s	283	307	330	354	378	401	425	448	472	496	519	543	566	590	614	637	661
CG,2G	pa	112	124	137	147	159	169	182	194	204	216	229	239	251	261	274	286	296
	l/s	283	330	378	425	472	519	566	614	661	708	755	—	—	—	—	—	—
DD,3D	pa	114	132	149	167	184	199	216	234	251	269	286	—	—	—	—	—	—
	l/s	425	472	519	566	614	661	708	755	802	850	897	944	—	—	—	—	—
DG,3G	pa	117	132	149	164	179	197	211	226	244	259	274	291	—	—	—	—	—
	l/s	378	425	472	519	566	614	661	708	755	802	850	—	—	—	—	—	—
EB,4B	pa	164	177	192	207	221	234	249	264	276	291	306	—	—	—	—	—	—
	l/s	519	566	614	661	708	755	802	850	897	944	991	1038	1086	1133	1180	1227	—
ED,4D	pa	127	137	149	162	172	184	197	207	219	231	244	254	266	279	289	301	—
	l/s	614	661	708	755	802	850	897	944	991	1038	1086	1133	1180	1227	1274	—	—
EF,4F	pa	149	159	172	182	194	204	216	226	239	251	261	274	284	296	306	—	—
	l/s	661	755	850	944	1038	1133	1227	1322	1416	1510	1605	1699	1794	1841	—	—	—
EG,4G	pa	119	134	149	164	179	194	209	224	239	254	269	284	299	306	—	—	—
	l/s	661	755	850	944	1038	1133	1227	1322	1416	1510	1605	1699	—	—	—	—	—
HB,5B	pa	144	157	172	184	199	211	224	239	251	266	279	294	—	—	—	—	—
	l/s	1062	1180	1298	1416	1534	1652	1770	1888	2006	2124	2242	2360	2478	2596	2714	—	—
HD,5D	pa	119	132	144	159	172	184	199	211	224	239	251	264	276	291	304	—	—
	l/s	1038	1133	1227	1322	1416	1510	1605	1699	1794	1888	1982	2077	2171	2266	2360	2454	2549
HF,5F	pa	119	129	142	152	162	174	184	194	204	216	226	236	249	259	269	281	291
	l/s	1534	1770	2006	2242	2478	2596	2714	2832	2950	3068	3186	3304	3422	3540	3658	3776	3894
HG,5G	pa	119	147	164	182	199	207	216	224	234	241	251	259	269	276	286	294	304
	l/s	1416	1652	1888	2124	2360	2596	2832	3068	3304	3540	3776	—	—	—	—	—	—
KD,6D	pa	112	132	149	169	187	207	224	244	261	281	299	—	—	—	—	—	—
	l/s	1888	2124	2360	2596	2832	3068	3304	3540	3776	4012	4248	4484	4720	4956	5192	5428	5664
KG,6G	pa	114	127	139	152	162	174	187	199	211	224	236	249	261	274	286	299	311

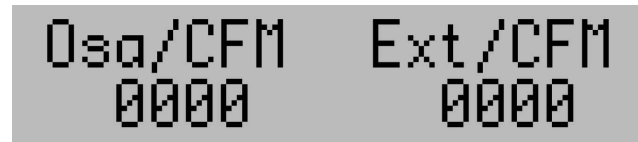
NOTE: Pressure sensing ports are provided on both sides of the ERV wheel for testing and balancing.

**Table 6 — Airflow vs. Pressure Drop Across ERV Wheel (cont)**

62E UNIT	AIRFLOW VS. PRESSURE DROP ACROSS ERV WHEEL																	
		1652	1888	2124	2360	2596	2832	3068	3304	3540	3776	4012	4248	4484	—	—	—	—
LD	l/s	1652	1888	2124	2360	2596	2832	3068	3304	3540	3776	4012	4248	4484	—	—	—	—
	pa	114	129	147	162	179	194	211	226	244	261	276	294	304	—	—	—	—
LG	l/s	2360	2832	3068	3304	3540	3776	4012	4248	4484	4720	4956	5192	5428	5664	5900	6136	6372
	pa	122	144	154	164	177	187	197	209	219	229	239	251	261	271	284	294	304
MD	l/s	2124	2360	2596	2832	3068	3304	3540	3776	4012	4248	4484	4720	4956	5192	—	—	—
	pa	124	139	152	167	179	194	207	221	234	249	264	276	291	304	—	—	—
MG	l/s	2832	3304	3776	4248	4720	4956	5192	5428	5664	5900	6136	6372	6608	6844	7080	7316	7552
	pa	124	142	162	179	197	207	216	224	234	244	251	261	271	279	289	299	306
ND	l/s	2596	2832	3068	3304	3540	3776	4012	4248	4484	4720	4956	5192	5428	5664	5900	6136	6372
	pa	124	137	147	159	169	182	192	204	214	226	239	249	261	271	284	294	306
NG	l/s	3540	4012	4484	4956	5428	5900	6372	6844	7316	7788	8260	8732	9204	—	—	—	—
	pa	127	142	157	172	187	202	216	231	246	261	276	291	306	—	—	—	—
PD	l/s	2832	3304	3776	4012	4248	4484	4720	4956	5192	5428	5664	5900	6136	6372	6608	6844	7080
	pa	119	139	159	169	179	189	199	209	219	229	239	249	259	269	279	289	299
PG	l/s	3776	4248	4720	5192	5664	6136	6608	7080	7552	8024	8496	8968	9440	9912	10384	—	—
	pa	119	134	147	159	172	187	199	211	226	239	251	264	279	291	304	—	—
RD	l/s	3304	3776	4248	4720	5192	5428	5664	5900	6136	6372	6608	6844	7080	7316	7552	7788	8024
	pa	127	144	162	182	199	209	216	226	234	244	254	264	271	281	289	299	309
RG	l/s	4248	4720	5192	5664	6136	6608	7080	7552	8024	8496	8968	9440	9912	10384	10856	11328	—
	pa	122	134	147	159	169	182	194	207	216	229	241	254	266	276	289	301	—
SD	l/s	3776	4248	4720	5192	5664	6136	6372	6608	6844	7080	7316	7552	7788	8024	8260	8496	8732
	pa	122	137	152	167	182	197	204	211	219	226	234	241	249	256	264	271	279
SG	l/s	5192	6136	7080	7552	8024	8496	8968	9440	9912	10384	10856	11328	11800	12272	12744	13216	13688
	pa	124	144	164	174	184	194	204	214	224	234	244	254	264	274	284	294	304
TD	l/s	4248	4720	5192	5664	6136	6608	7080	7552	8024	8496	8968	9440	9912	10384	—	—	—
	pa	127	139	154	167	182	197	209	224	236	251	266	279	294	306	—	—	—
TG	l/s	5664	6608	7552	8496	8968	9440	9912	10384	10856	11328	11800	12272	12744	13216	13688	14160	14632
	pa	124	144	162	182	189	199	209	216	226	236	246	254	264	274	281	291	301
UD	l/s	4720	5192	5664	6136	6608	7080	7552	8024	8496	8968	9440	9912	10384	10856	11328	11800	—
	pa	100	134	147	159	172	184	197	207	219	231	244	256	269	281	294	306	—
UG	l/s	6608	7552	8496	9440	10384	11328	11800	12272	12744	13216	13688	14160	14632	15104	15576	16048	16520
	pa	127	144	159	177	192	209	216	224	231	241	249	256	264	274	281	289	296

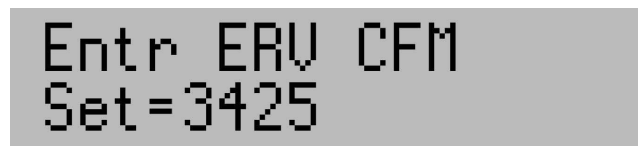
NOTE: Pressure sensing ports are provided on both sides of the ERV wheel for testing and balancing.

**UNITS WITH EZERV CONTROL OPTION** — With the EzERV option, the LCD display will change to show the amount of air moving through the cabinet in cubic feet per minute (cfm). The screen is divided into two columns: The left column showing the amount of outside air (Osa/cfm) and the right column showing the exhaust air (Ext/cfm). To adjust the fan speeds, remove the small panel next to the control panel cover to access the user input controls. See Fig. 16.



**Fig. 16 — LCD Display**

**Balanced Air Option** — Press the push button once to bring up the ERV cfm screen. Turn the knob clockwise to increase or counterclockwise to decrease the amount of outside air coming into the building. See Fig. 17. The exhaust airflow will automatically adjust to equal the supply airflow. Press the button again to return to the main screen. Replace the user control cover.



**Fig. 17 — ERV Cfm Screen**

**Offset Air Option** — Press the push button once to bring up the outside air cfm screen. Turn the knob clockwise to increase or counterclockwise to decrease the amount of outside air coming into the building. See Fig. 18.



**Fig. 18 — Outside Air Cfm Screen**

Press the push button again to bring up the exhaust air offset screen. A negative exhaust air offset would equate to a smaller amount of air being exhausted from the building when compared to the outside air being supplied to the building. Adjust the knob clockwise to increase and counterclockwise to decrease the exhaust offset cfm level. See Fig. 19. Press the



button again to return to the main screen. Replace the user control cover.



Enter Exst Offse  
Set=350 CFM

Fig. 19 — Exhaust Air Offset Screen

Modulating CO<sub>2</sub> with Balanced Air Option (Fig. 20) — This option allows the user to enter minimum and maximum outside airflow levels. The user will then be allowed to enter minimum and maximum CO<sub>2</sub> levels. The EzERV program will modulate the cfm of the ERV based on the building CO<sub>2</sub> level. To enter the user settings press the pushbutton once to display the minimum cfm screen. Adjust the knob clockwise to increase and counterclockwise to decrease the minimum cfm level.



Entr Min CFM  
Set=3090 CFM

Fig. 20 — Modulating Cfm

Press the push button again to display the maximum cfm screen. Adjust the knob clockwise to increase and counterclockwise to decrease the maximum cfm level. See Fig. 21.



Entr Max CFM  
Set=4950 CFM

Fig. 21 — Maximum Cfm Screen

Press the push button again to display the minimum CO<sub>2</sub> level screen. Adjust the knob clockwise to increase and counterclockwise to decrease the minimum CO<sub>2</sub> level. See Fig. 22.



Entr Min CO2Leve  
Set=0600 PPM

Fig. 22 — Minimum CO<sub>2</sub> Screen

Press the push button again to display the maximum CO<sub>2</sub> level screen. Adjust the knob clockwise to increase and counterclockwise to decrease the maximum CO<sub>2</sub> level. See Fig. 23.



Entr Max CO2Leve  
Set=1000 PPM

Fig. 23 — Maximum CO<sub>2</sub> Screen

The exhaust airflow will automatically adjust to equal the supply airflow. Press the button again to return to the main screen. Replace the user control cover.

NOTE: The scale for the cfm vs. CO<sub>2</sub> level is based on a CO<sub>2</sub> sensor that outputs 0-vdc at 0 ppm CO<sub>2</sub> and 10-vdc at 2000 ppm CO<sub>2</sub>. For example, using the figures above, the airflow would modulate linearly from 1458 L/s (3090 cfm) at 3vdc to 2336 L/s (4950 cfm) at 5-vdc. A signal below 3-vdc would result in a constant 1458 L/s (3090 cfm) while a signal above 5-vdc would result in a constant 2336 L/s (4950 cfm).

Modulating CO<sub>2</sub> with Offset Air Option — Follow the steps above for modulating CO<sub>2</sub> with balanced air. After setting the maximum CO<sub>2</sub> level press the push button again to display the

exhaust air offset screen. A negative exhaust air offset would equate to a smaller amount of air being exhausted from the building when compared to the outside air being supplied to the building. Adjust the knob clockwise to increase and counterclockwise to decrease the exhaust offset cfm level. Press the button again to return to the main screen. Replace the user control cover.

Building Pressure Control Option — This option will hold the outside air cfm level constant and will modulate the exhaust airflow to maintain the building pressure set point. Press the push button once to bring up the ERV cfm screen. Turn the knob clockwise to increase or counterclockwise to decrease the amount of outside air coming into the building. Press the push button again to display the "Building Pressure Set Point" screen. Adjust the knob clockwise to increase and counterclockwise to decrease the desired building pressure level. Press the button again to return to the main screen. Replace the user control cover.

Modulating CO<sub>2</sub> with Building Pressure Control Option — This option will modulate the supply fan of the ERV based on the building CO<sub>2</sub> level, and will modulate the exhaust airflow to maintain the building pressure set point. Follow the procedure outlined above to configure the minimum and maximum outside airflow and CO<sub>2</sub> levels. After setting the maximum CO<sub>2</sub> level press the push button once more to display the building pressure set point screen. Adjust the knob clockwise to increase and counterclockwise to decrease the desired building pressure level. Press the button again to return to the main screen. Replace the user control cover.

**Operating Sequence** — When operation is called for by the rooftop supply fan interlock or remote timer option, the ERV supply blower(s), exhaust blower(s) and wheel motor will be energized. The supply and exhaust blowers will provide the adjusted/programmed airflow and the ERV wheel will rotate at a constant speed unless influenced by one of the following conditions. The sequence of operation is shown in Fig. 24.

**LOW TEMPERATURE LOCKOUT** — The optional low temperature lockout function locks out the 62E ERV if the outdoor-air temperature entering the wheel is below the set point. The low temperature lockout is factory set at -23.3 C (-10 F), and can be field adjusted from -34.4 C to 37.8 C (-30 F to 100 F).

**FROST PROTECTION** — The frost protection option monitors the pressure drop across the ERV wheel. If the pressure drop rises above an adjustable limit, the outside air fan will be de-energized for a 5-minute period. The setting must be field set at 50% above (1.5 times) the pressure drop measured at the maximum adjusted airflow and a clean, dry wheel.

**ERV WHEEL VARIABLE FREQUENCY DRIVE (VFD)** — The ERV wheel VFD option monitors the pressure drop across the ERV wheel. If the pressure drop rises above an adjustable limit, the ERV wheel rotational speed will be reduced for a minimum of 5 minutes to defrost the wheel. The setting must be field set at 50% above (1.5 times) the pressure drop measured at the maximum adjusted airflow and a clean, dry wheel.

**PRE-HEATERS** — Units may be equipped with electric pre-heaters to prevent frost build-up on the wheel by slightly warming the outdoor air. This feature monitors the pressure drop across the ERV wheel and the outdoor-air temperature. If the pressure drop rises above an adjustable limit and the outdoor-air temperature is below an adjustable set point, the heaters will be energized. The wheel pressure drop setting must be field set at 50% above (1.5 times) the pressure drop measured at the maximum adjusted airflow and a clean, dry wheel. The outdoor air thermostat is factory set to activate at -20.6 C (-5 F), and can be field adjusted from -34.4 C to 37.8 C (-30 F to 100 F).

HVAC Supply Fan On  
 or ERV Timer Option Active  
 or Stand Alone Short  
 Pins 31 to 30 and 29 to 28

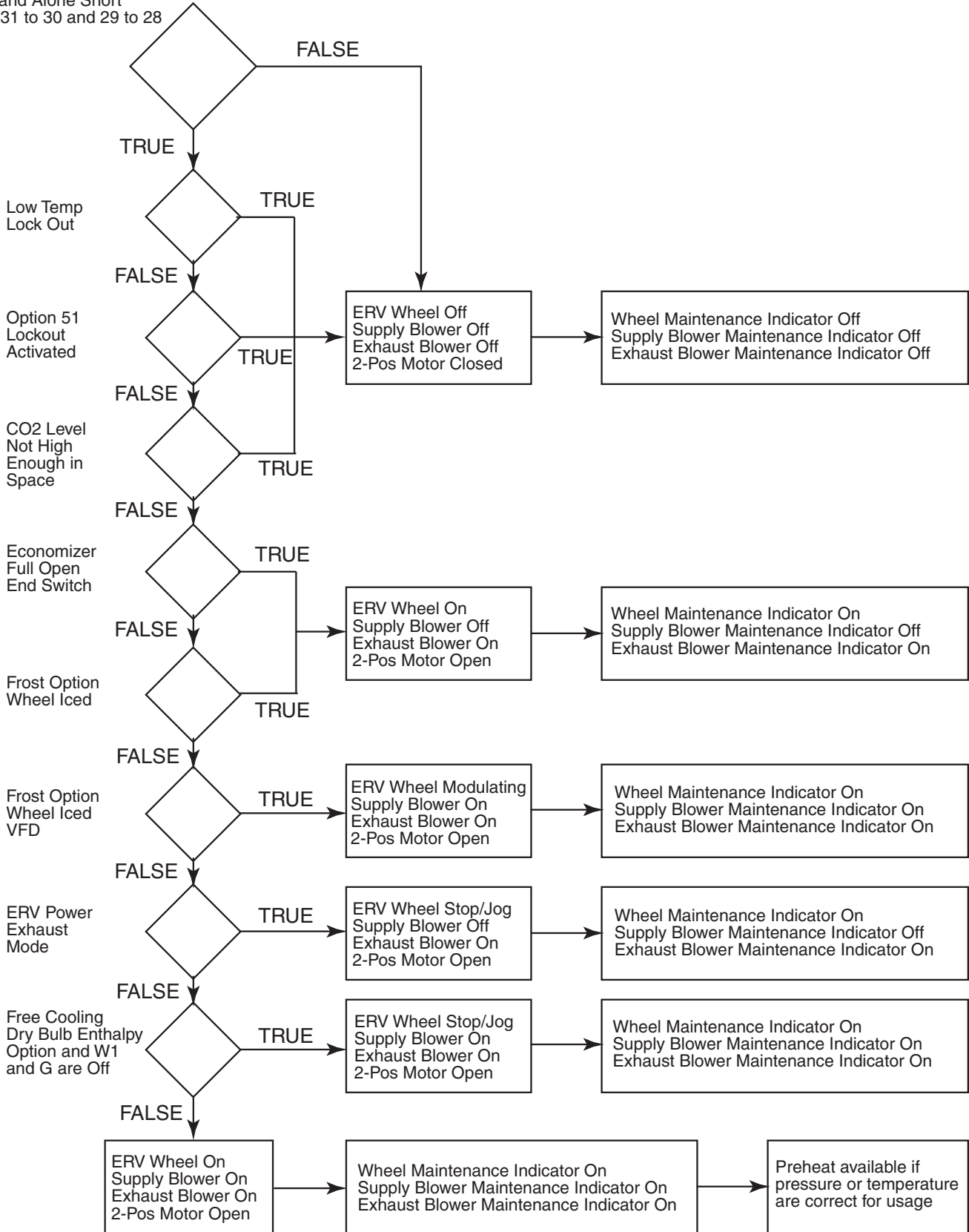


Fig. 24 — ERV Sequence of Operation

**MOTORIZED DAMPERS** — Units may have an optional two-position outside-air damper, exhaust-air damper, or both. The dampers will modulate closed when the ERV is off.

**MODULATING CO<sub>2</sub> CONTROL** — The supply fan speed will be modulated to provide supply airflow between minimum and maximum levels based on a programmed indoor CO<sub>2</sub> level.

**BUILDING PRESSURE CONTROL** — The exhaust fan speed will be modulated to provide supply airflow between minimum and maximum levels based on a programmed indoor building pressure.

**ERV UNIT WITH ECONOMIZER, STOP JOG AND EXHAUST BLOWER RUNNING** — This option is used when the RTU is equipped with an economizer without power exhaust. When the RTU opens the economizer to provide free cooling, the ERV supply fan will turn off. The ERV wheel will be periodically rotated to prevent build-up of contaminants on the wheel. The ERV exhaust fan will continue to operate.

**ERV UNIT WITH ECONOMIZER; ERV DOES NOT RUN** — This option is used when the RTU is equipped with an economizer with power exhaust. When the RTU opens the economizer to provide free cooling, the ERV supply and exhaust fans will turn off. The ERV wheel will also be turned off.

**ComfortLink™ Interface Device** — The purpose of the device is to provide factory-installed “Plug and Play” control interface between the 62E and a Carrier rooftop unit *ComfortLink* control system. The interface allows for optimal system operation by sharing unit data and properly coordinating energy recovery, economizer, and power exhaust operation.

For HVAC units with electro-mechanical controls, damper end switches or relays may be used to coordinate the economizer and power exhaust operation with the ERV. On units with *ComfortLink* controls, this becomes more of a challenge since the economizer and power exhaust sequencing is determined through software logic and not electromechanical devices. The *ComfortLink* interface device allows the 62E controls to read key data points and force critical operating parameters in the 48/50A unit’s *ComfortLink* logic to ensure proper system operation. The factory-installed option includes a pre-programmed translator that allows the 62E controller to access the *ComfortLink* controls through the unit’s LEN (local equipment network) plug.

**Optional BACnet or LON Communications Interface** — The BACnet\* Communication interface and LON (local operating network) communications interface options use the UPC Open controller. The controller

communicates using BACnet on an MS/TP network segment communications at 9600 bps, 19.2 kbps, 38.4 kbps, or 76.8 kbps.

**WIRING** — Wire the controllers on an MS/TP network segment in a daisy-chain configuration. Wire specifications for the cable are 22 AWG (American Wire Gage) or 24 AWG, low-capacitance, twisted, stranded, shielded copper wire. The maximum length is 2000 ft.

Install a BT485 terminator on the first and last controller on a network segment to add bias and prevent signal distortions due to echoing. See Fig. 25-27.

To wire the UPC Open controller to the BAS (building automation system) network:

1. Pull the screw terminal connector from the controller's BAS Port.
2. Check the communications wiring for shorts and grounds.
3. Connect the communications wiring to the BAS port's screw terminals labeled Net +, Net -, and Shield.

NOTE: Use the same polarity throughout the network segment.

4. Insert the power screw terminal connector into the UPC Open controller's power terminals if they are not currently connected.
5. Verify communication with the network by viewing a module status report. To perform a module status report using the BACview keypad/display unit, press and hold the “FN” key then press the “.” Key.

To install a BT485 terminator, push the BT485, on to the BT485 connector located near the BACnet connector.

NOTE: The BT485 terminator has no polarity associated with it.

To order a BT485 terminator, consult Commercial Products i-Vu® Open Control System Master Prices.

**MS/TP WIRING RECOMMENDATIONS** — Recommendations are shown in Tables 7 and 8. The wire jacket and UL temperature rating specifications list two acceptable alternatives. The Halar specification has a higher temperature rating and a tougher outer jacket than the SmokeGard specification, and it is appropriate for use in applications where the user is concerned about abrasion. The Halar jacket is also less likely to crack in extremely low temperatures.

NOTE: Use the specified type of wire and cable for maximum signal integrity.

**Table 7 — UPC Open System Wiring Specifications and Recommended Vendors**

WIRING SPECIFICATIONS		RECOMMENDED VENDORS AND PART NUMBERS			
Wire Type	Description	Connect Air International	Belden	RMCORP	Contractors Wire and Cable
<b>MS/TP Network (RS-485)</b>	22 AWG, single twisted shielded pair, low capacitance, CL2P, TC foam FEP, plenum rated. See MS/TP Installation Guide for specifications.	W221P-22227	—	25160PV	CLP0520LC
	24 AWG, single twisted shielded pair, low capacitance, CL2P, TC foam FEP, plenum rated. See MS/TP Installation Guide for specifications.	W241P-2000F	82841	25120-OR	—
<b>Rnet</b>	4 conductor, unshielded, CMP, 18 AWG, plenum rated.	W184C-2099BLB	6302UE	21450	CLP0442

**LEGEND**

- AWG** — American Wire Gage
- CL2P** — Class 2 Plenum Cable
- CMP** — Communications Plenum Rated
- FEP** — Fluorinated Ethylene Polymer
- TC** — Tinned Copper

\* Sponsored by ASHRAE (American Society of Heating, Refrigerating, and Air Conditioning Engineers).

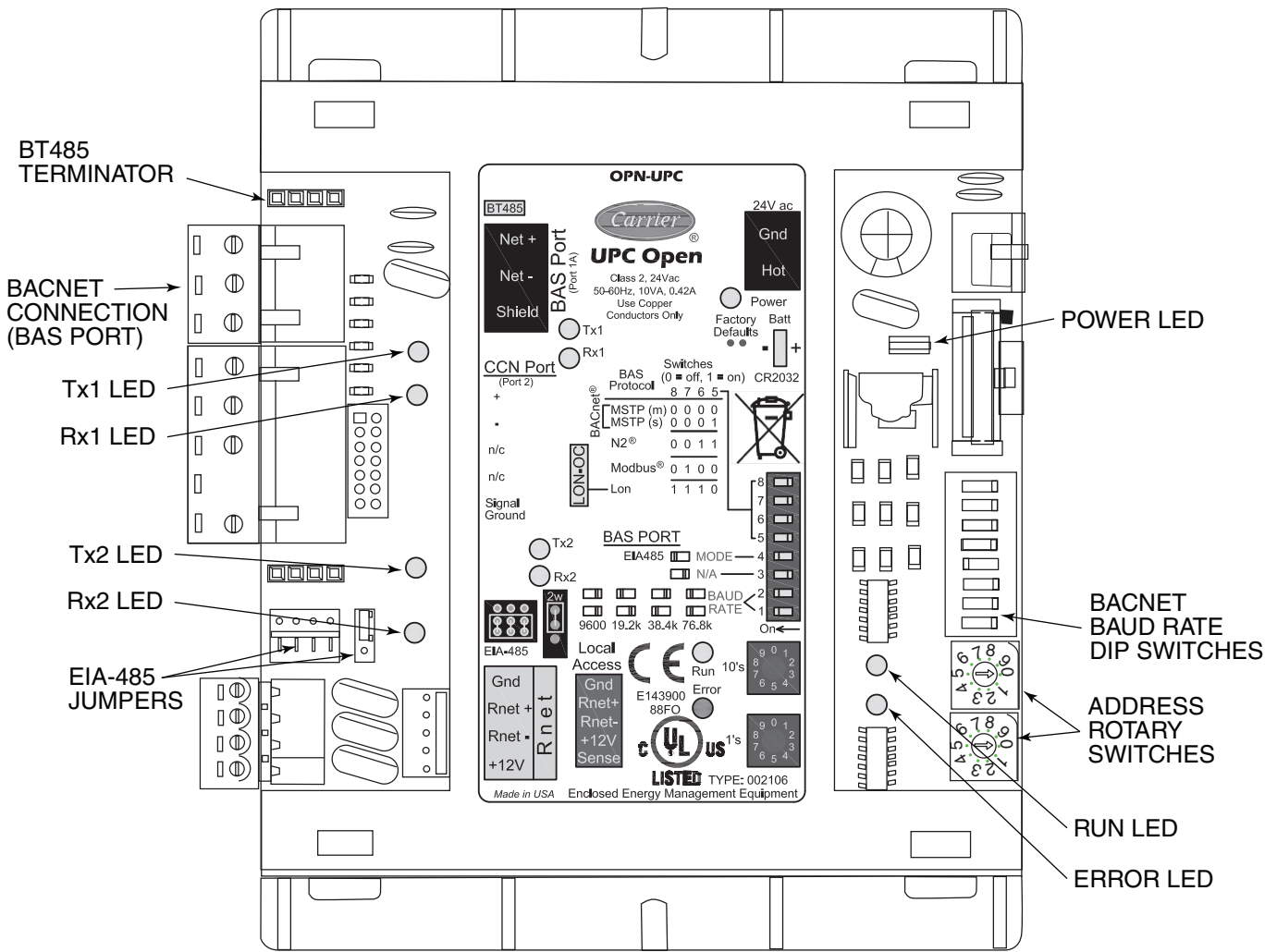


Fig. 25 — UPC Open Controller

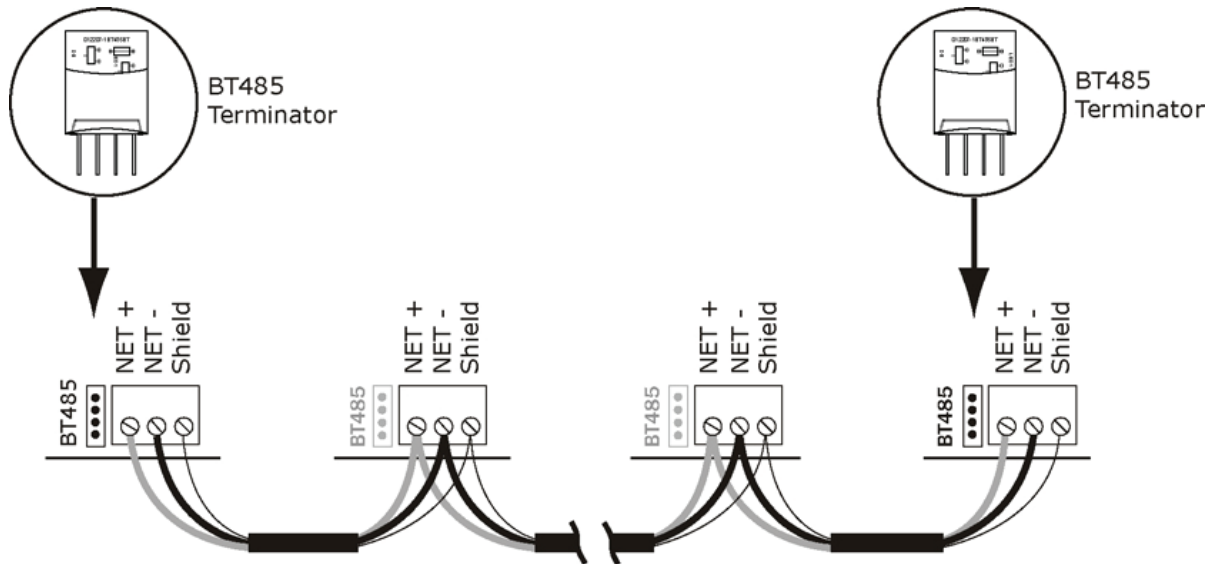


Fig. 26 — Network Wiring

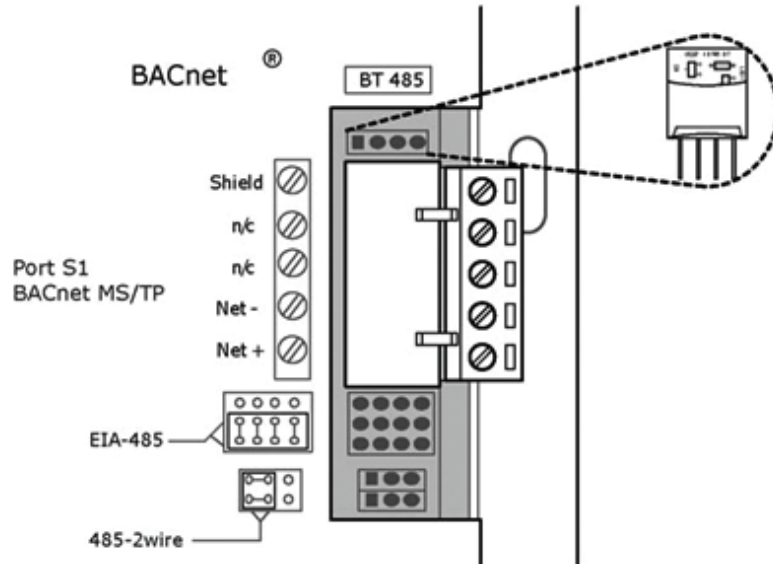


Fig. 27 — BT485 Terminator Installation

Table 8 — MS/TP Wiring Recommendations

SPECIFICATION	RECOMMENDATION
<b>Cable</b>	Single twisted pair, low capacitance, CL2P, 22 AWG (7x30), TC foam FEP, plenum rated cable
<b>Conductor</b>	22 or 24 AWG stranded copper (tin plated)
<b>Insulation</b>	Foamed FEP 0.015 in. (0.381 mm) wall 0.060 in. (1.524 mm) O.D.
<b>Color Code</b>	Black/White
<b>Twist Lay</b>	2 in. (50.8 mm) lay on pair 6 twists/foot (20 twists/meter) nominal
<b>Shielding</b>	Aluminum/Mylar shield with 24 AWG TC drain wire
<b>Jacket</b>	SmokeGard Jacket (SmokeGard PVC) 0.021 in. (0.5334 mm) wall 0.175 in. (4.445 mm) O.D. Halar Jacket (E-CTFE) 0.010 in. (0.254 mm) wall 0.144 in. (3.6576 mm) O.D.
<b>DC Resistance</b>	15.2 Ohms/1000 feet (50 Ohms/km) nominal
<b>Capacitance</b>	12.5 pF/ft (41 pF/meter) nominal conductor to conductor
<b>Characteristic Impedance</b>	100 Ohms nominal
<b>Weight</b>	12 lb/1000 feet (17.9 kg/km)
<b>UL Temperature Rating</b>	SmokeGard 167°F (75°C), Halar -40 to 302°F (-40 to 150°C)
<b>Voltage</b>	300 Vac, power limited
<b>Listing</b>	UL: NEC CL2P, or better

LEGEND

- AWG — American Wire Gage
- CL2P — Class 2 Plenum Cable
- DC — Direct Current
- FEP — Fluorinated Ethylene Polymer
- NEC — National Electrical Code
- O.D. — Outside Diameter
- TC — Tinned Copper
- UL — Underwriters Laboratories

TO ADDRESS THE UPC OPEN CONTROLLER — The user must give the UPC Open controller an address that is unique on the BACnet network. Perform the following procedure to assign an address:

1. If the UPC Open controller is powered, pull the screw terminal connector from the controller's power terminals labeled Gnd and HOT. The controller reads the address each time power is applied to it.
2. Using the rotary switches (see Fig. 25 and 28), set the controller's address. Set the Tens (10's) switch to the tens digit of the address, and set the Ones (1's) switch to the ones digit.

As an example in Fig. 28, if the controller's address is 25, point the arrow on the Tens (10's) switch to 2 and the arrow on the Ones (1's) switch to 5.

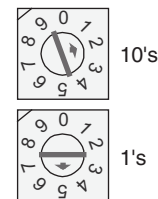


Fig. 28 — Address Rotary Switches

BACNET DEVICE INSTANCE ADDRESS — The UPC Open controller also has a BACnet Device Instance address. This Device Instance MUST be unique for the complete BACnet system in which the UPC Open controller is installed. The Device Instance is auto generated by default and is derived by

adding the MAC address to the end of the Network Number. The Network Number of a new UPC Open controller is 16101, but it can be changed using i-Vu® Tools or BACView device. By default, a MAC address of 20 will result in a Device Instance of 16101 + 20 which would be a Device Instance of 1610120.

**CONFIGURING THE BAS PORT FOR BACNET MS/TP** — Use the same baud rate and communication settings for all controllers on the network segment. The UPC Open controller is fixed at 8 data bits, No Parity, and 1 Stop bit for this protocol's communications.

If the UPC Open controller has been wired for power, pull the screw terminal connector from the controller's power terminals labeled Gnd and HOT. The controller reads the DIP Switches and jumpers each time power is applied to it.

Set the BAS Port DIP switch DS3 to “enable.” Set the BAS Port DIP switch DS4 to “E1-485.” Set the BMS Protocol DIP switches DS8 through DS5 to “MSTP.” See Table 9.

**Table 9 — SW3 Protocol Switch Settings for MS/TP**

DS8	DS7	DS6	DS5	DS4	DS3
Off	Off	Off	Off	On	Off

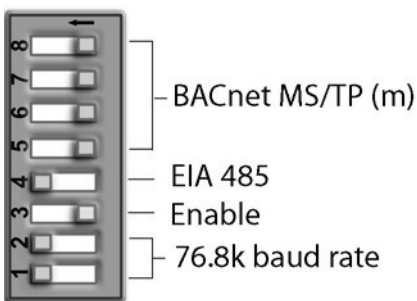
Verify that the EIA-485 jumpers below the CCN Port are set to EIA-485 and 2W.

The example in Fig. 29 shows the BAS Port DIP Switches set for 76.8k (Carrier default) and MS/TP.

Set the BAS Port DIP Switches DS2 and DS1 for the appropriate communications speed of the MS/TP network (9600, 19.2k, 38.4k, or 76.8k bps). See Fig. 29 and Table 10.

**Table 10 — Baud Selection Table**

BAUD RATE	DS2	DS1
9,600	Off	Off
19,200	On	Off
38,400	Off	On
76,800	On	On



**Fig. 29 — DIP Switches**

**Table 11 — UPC Communication Protocol Settings (DIP Switches 5-8)**

PROTOCOL TYPE	DIP SWITCH			
	5	6	7	8
BACnet MSTP (m)	OFF	OFF	OFF	OFF
BACnet MSTP (s)	ON	OFF	OFF	OFF
BACnet PTP	OFF	ON	OFF	OFF
N2	ON	ON	OFF	OFF
Modbus	OFF	OFF	ON	OFF
LON SLTA	ON	OFF	ON	ON
LON Plugin	OFF	ON	ON	ON
Ethernet	ON	ON	ON	ON

DIP switch 3 is used to set up which port the building network is connected to. This DIP switch will always be set to OFF.

DIP switch 4 is used to tell the UPC controller the communication language of the building network. This should always be set to ON, unless the network uses BACnet over ARC156.

DIP switches 5-8 are used to set up the communication protocol. See Table 11 for settings.

**NETWORK POINTS AND DESCRIPTIONS** — The points list for the controller is shown in Table 12.

**BP (AV:1)** — The BP (AV:1) parameter is a read-only value that shows the current building pressure from the building pressure sensor inside the ERV. This parameter is only applicable for a building pressure based mode of operation.

**DCV CO2 INSIDE (AV:2)** — This parameter shows the reading from the CO<sub>2</sub> sensor that is connected to the ERV. The CO<sub>2</sub> sensor is only provided with the ERV when the ERV has been ordered with a CO<sub>2</sub> based EzERV control scheme.

**EAT SENSOR (AV:3), OAT SENSOR (AV:7), RAT SENSOR (AV:9), AND SAT SENSOR (AV:19)** — These status points show the temperatures in all 4 quadrants of the ERV. The status points will only display values other than 0 if the ERV was ordered with temperature sensors.

**EXHAUST AIR CFM (AV:5) AND OUTSIDE AIR CFM (AV:8)** — These status points provide the airflow that each fan is moving if the ERV was ordered with the EzERV option. This option is an integrated airflow monitoring station.

**EX FAN POS (AV:4) AND OA FAN POS (AV:6)** — The fan speed status points provide feedback on a scale of 0 to 100% to show the output of each fan.

**REMOTE AIRFLOW CONFIGURATION MODE (AV:10)** — This mode sets up the mode of operation for the ERV. The setting is associated with the control scheme the ERV was ordered with from the factory. The appropriate setting for this mode correlates with the last 3 characters of the part number on the ERV.

- For part number G-A, the mode is Offset Airflow Control (mode no. 1).
- For part number G-B, the mode is CO<sub>2</sub> sensor based Demand Control Ventilation with Offset Airflow Control (mode no. 2).
- For part number G-D, the mode is Building Pressure sensor based Airflow Control (mode no. 3).
- For part number G-E, the mode is CO<sub>2</sub> sensor based Demand Controlled Ventilation with Building Pressure sensor based Airflow Control (mode no. 4).
- If the ERV part number does not have "G-" in it then mode no. 0 should always be used.

**Table 12 — Network Points List**

BACNET OBJECT ID	POINT NAME	READ/ WRITE	BACNET OBJECT NAME
AV:1	BP	R	bp_1
AV:2	DCV_CO2_INSIDE	R	dcv_co2_inside_1
AV:3	EAT_SENSOR	R	eat_sensor_1
AV:4	EX_FAN_POS	R	ex_fan_pos_1
AV:5	EXHAUST_AIR_CFM	R	exhaust_air_cfm_1
AV:6	OA_FAN_POS	R	oa_fan_pos_1
AV:7	OAT_SENSOR	R	oat_sensor_1
AV:8	OUTSIDE_AIR_CFM	R	outside_air_cfm_1
AV:9	RAT_SENSOR	R	rat_sensor_1
AV:10	REMOTE_AIRFLOW_CONFIGURATION_MODE	R/W	remote_airflow_configuration_mode_1
AV:11	REMOTE_BP_SENSOR	R/W	remote_bp_sensor_1
AV:12	REMOTE_BP_SETPOINT	R/W	remote_bp_setpoint_1
AV:13	REMOTE_EXHAUST_OFFSET_SETPOINT	R/W	remote_exhaust_offset_setpoint_1
AV:14	REMOTE_MAX_CFM_SETPOINT	R/W	remote_max_cfm_setpoint_1
AV:15	REMOTE_MAX_DCV_VALUE_SETPOINT	R/W	remote_max_dcv_value_setpoint_1
AV:16	REMOTE_MIN_CFM_SETPOINT	R/W	remote_min_cfm_setpoint_1
AV:17	REMOTE_MIN_DCV_VALUE_SETPOINT	R/W	remote_min_dcv_value_setpoint_1
AV:18	REMOTE_SENSOR_DCV_VALUE	R/W	remote_sensor_dcv_value_1
AV:19	SAT_SENSOR	R	sat_sensor_1
AV:20	UPC_SOFTWARE_VERSION_STAT	R	upc_software_version_stat_1
AV:21	UPC_SOFTWARE_VERSION	R	upc_software_version_1
AV:22	EX_FILTER_BP	R	ex_filter_bp_1
AV:23	OA_FILTER_BP	R	oa_filter_bp_1
AV:24	REMOTE_EX_FILTER_BP_SETPOINT	R/W	remote_ex_filter_bp_setpoint_1
AV:25	REMOTE_OA_FILTER_BP_SETPOINT	R/W	remote_oa_filter_bp_setpoint_1
AV:26	MMC_MAIN_BOARD_SOFTWARE_VERSION	R/W	mmc_main_board_software_version_1
AV:27	REMOTE_EX_FAN_SPEED_SETPOINT	R/W	remote_ex_fan_speed_setpoint_1
AV:28	REMOTE_OA_FAN_SPEED_SETPOINT	R/W	remote_oa_fan_speed_setpoint_1
AV:29	ERV_VFD_WHEEL_POS	R	erv_vfd_wheel_pos_1
AV:30	REMOTE_VFD_WHEEL_SPEED_SETPOINT	R/W	remote_vfd_wheel_speed_setpoint_1
BV:1	ERV_2POS_DAMPER_STAT	R	erv_2pos_damper_stat_1
BV:2	ERV_EX_STAT	R	erv_ex_stat_1
BV:3	ERV_OA_STAT	R	erv_oa_stat_1
BV:4	ERV_WHEEL_STAT	R	erv_wheel_stat_1
BV:5	EX_BLOWER_ALARM	R	ex_blower_alarm_1
BV:6	EX_DIRTY_FILTER_ALARM	R	ex_dirty_filter_alarm_1
BV:7	FIX_WHEEL_ALARM	R	fix_wheel_alarm_1
BV:8	OA_BLOWER_ALARM	R	oa_blower_alarm_1
BV:9	OA_DIRTY_FILTER_ALARM	R	oa_dirty_filter_alarm_1
BV:10	OA_LOWCFM	R	oa_lowcfm_1
BV:11	REMOTE_BP_SENSOR_ENABLE	R/W	remote_bp_sensor_enable_1
BV:12	REMOTE_DCV_SENSOR_ENABLE	R/W	remote_dcv_sensor_enable_1
BV:13	REMOTE_ERV_DOWN_ENABLE	R/W	remote_erv_down_enable_1
BV:14	REMOTE_PWR_EXHAUST_ENABLE	R/W	remote_pwr_exhaust_enable_1
BV:15	REMOTE_START_STOP	R/W	remote_start_stop_1
BV:16	REMOTE_WHEEL_BYPASS_ENABLE	R/W	remote_wheel_bypass_enable_1

REMOTE BP SENSOR (AV:11) — This parameter is only applicable if the ERV is running in a building pressure based mode of operation and the parameter REMOTE BP SENSOR ENABLE (BV:11) is set to 1. If the parameter is set to 0, then the ERV will use the BP (AV:1) parameter. The ERV will modulate the exhaust fan to try to achieve the number that is set into REMOTE BP SETPOINT (AV:12).

REMOTE BP SENSOR SETPOINT (AV:12) — This is the desired building pressure. The ERV will modulate the exhaust fan to try to achieve this set point. This parameter is only applicable for a building pressure based mode of operation. The ERV will use this value for its calculations if the REMOTE AIRFLOW CONFIGURATION MODE (AV:10) is not 0. If the REMOTE AIRFLOW CONFIGURATION MODE

(AV:10) is set to 0, then the ERV will use the value that has been loaded locally into the ERV control board.

REMOTE EXHAUST OFFSET SETPOINT (AV:13) — This parameter is applicable when REMOTE AIRFLOW CONFIGURATION MODE (AV:10) is configured to 1 or 2. This will set the difference by which the exhaust airflow will follow the outside airflow. For example, if the demand control ventilation set points are telling the outdoor air fan to run at 4,000 cfm, and the REMOTE EXHAUST OFFSET SETPOINT (AV:13) is set to -1,000, then the exhaust fan will be running at 3,000 CFM.

REMOTE SENSOR DCV VALUE (AV:18) — This parameter is also only applicable if the ERV is running in a CO<sub>2</sub> based mode of operation and the parameter REMOTE DCV SENSOR ENABLE (BV:12) is set to 1. If REMOTE DCV

SENSOR ENABLE (BV:12) is set to 0, then the ERV will use the DCV CO2 INSIDE (AV:2) parameter. Any value can be written into this parameter.

The ERV will look at this parameter along with parameters: REMOTE MIN DCV VALUE SETPOINT (AV:17), REMOTE MAX DCV VALUE SETPOINT (AV:15), REMOTE MIN CFM SETPOINT (AV:16), and REMOTE MAX CFM SETPOINT (AV:14) to determine the settings for the ERV. These 4 remote set points will only be used if the REMOTE AIRFLOW CONFIGURATION MODE (AV:10) parameter is not 0. Otherwise the values that have been loaded locally into the ERV will be used.

EX FILTER BP (AV:22) AND OA FILTER BP (AV:23) — These status points show the pressure drop across each air filter. This pressure drop is used to determine when the air filters are dirty. These numbers will always be 0 unless the ERV was ordered with this option.

REMOTE EX FILTER BP SETPOINT (AV:24) AND REMOTE OA FILTER BP SETPOINT (AV:25) — These set points are related to the dirty filter indicator option of the ERV. If the ERV has the dirty filter indicator option installed this parameter will set the trip point for which the ERV will give a dirty filter alarm. This number will be dependent on the airflow that the ERV is set to. The best way to determine the dirty filter set points is to use the unit status parameters called EX FILTER BP (AV:22) and OA FILTER BP (AV:23). With clean filters in the ERV, and the ERV running at its design conditions, note the values of the filter status parameters. Multiply those numbers by 1.5 and use them for the filter set points. These set points will overwrite the value that was set locally into the ERV. If this value is changed locally it will overwrite the value that was set remotely.

REMOTE EX FAN SPEED SETPOINT (AV:27) AND REMOTE OA FAN SPEED SETPOINT (AV:28) — These parameters allow for direct input to tell the fans how fast to run. The parameter needs to be set to a number between 1% and 100%. When this parameter is set to 0% the ERV's internal control board will take control of the fans.

ERV WHEEL SPEED (AV:29) — This status shows the speed that the ERV heat exchanger wheel is running on a scale of 0 to 100%. If the ERV was not ordered with a variable frequency drive on the wheel this status will always read 100%.

REMOTE VFD WHEEL SPEED SETPOINT (AV:30) — This parameter allows for the wheel rotation speed to be varied. This is often used to change the efficiency of the Energy Recovery Heat Exchanger Wheel to maintain a constant discharge temperature. This needs to be entered as a number that is between 1% and 100%. Entering 0% will put the wheel speed in automatic mode, and the ERV control board will take control. To turn off the wheel use the REMOTE WHEEL BYPASS ENABLE (BV:16) parameter.

ERV 2POS DAMPER STAT (BV:1) — This status shows if the ERV is commanding the two-position dampers to open. This status will update whether the ERV was ordered with two-position dampers or not.

ERV EX STAT (BV:2) AND ERV OA STAT (BV:3) — These status points output a logic 1 to show when the fan is ON.

ERV WHEEL STAT (BV:4) — The ERV WHEEL STAT status shows whether or not the ERV heat exchange wheel is running.

ERV EX BLOWER ALARM (BV:5) AND ERV OA BLOWER ALARM (BV:8) — These alarms indicate a catastrophic failure of a blower in the ERV. The alarms can also indicate a missing leg of incoming power, over voltage, under voltage or extremely dirty incoming power to the ERV. These alarms will never go active if the ERV was not ordered with the blower alarm options.

FIX WHEEL ALARM (BV:7) — This alarm indicates that the ERV heat exchange wheel is not turning when it is supposed to be turning. This alarm will never go active if the ERV was not ordered with this alarm option.

EX DIRTY FILTER ALARM (BV:6) AND OA DIRTY FILTER ALARM (BV:9) — This alarm indicates that the air filters in the ERV need to be changed. These alarms are related to parameters REMOTE EX FILTER BP SETPOINT (AV:24) and REMOTE OA FILTER BP SETPOINT (AV:25). The set points determine when the ERV is going to give a dirty filter alarm. This alarm will never go active if the ERV was not ordered with the dirty filter alarm options.

OA LOW CFM (BV:10) — This alarm becomes active if the desired outside air CFM set point is not being met. The alarm will only trip if the desired outside air CFM set point has not been satisfied for 5 minutes.

REMOTE BP SENSOR ENABLE (BV:11) — If this parameter is set to OFF the ERV will use the building pressure reading off of the sensor inside the ERV. If the parameter is set to ON, the ERV will use the building pressure value that is being written in parameter REMOTE BP SENSOR VALUE.

REMOTE ERV DOWN ENABLE (BV:13) — This parameter is another start/stop command for the ERV. Turning this parameter to 1 will shut the ERV down. Unlike the REMOTE START STOP (BV:15) parameter, it is not dependant on the REMOTE AIRFLOW CONFIGURATION MODE (AV:10) parameter.

REMOTE PWR EXHAUST ENABLE (BV:14) — This parameter puts the ERV into a power exhaust mode that is usually used in conjunction with the economizer of the rooftop unit. The power exhaust mode turns off the wheel and the outside air blower. The exhaust blower will continue to run at its current set point. Setting this parameter to 1 will put the ERV into power exhaust mode.

REMOTE START STOP (BV:15) — This parameter allows the user to turn on/off the ERV. Setting this parameter to 1 will turn the ERV ON. The REMOTE START STOP works in conjunction with the start/stop contact on the ERV field terminal strip if the REMOTE AIRFLOW CONFIGURATION MODE (AV:10) is set to 0. If the REMOTE AIRFLOW CONFIGURATION MODE (AV:10) is not set to 0, then the REMOTE START STOP parameter will override the field terminal strip.

REMOTE WHEEL BYPASS ENABLE (BV:16) — Setting this parameter to 1 will turn off the ERV heat exchange wheel. This mode is normally used to disable the wheel when free cooling is available.

## SERVICE

### ⚠ CAUTION

Disconnect electrical power before servicing energy recovery cassette. Failure to do so could result in personal injury.

**Removing and Installing Non-Segmented Wheel for Cleaning (62EB,E7 Units)** — Non-segmented energy transfer wheels are secured to the shaft and bearing support beam by a Phillips head screw and hub cover. See Fig. 30.

To remove the energy transfer wheel, follow Steps 1-4 below. (See Fig. 30.) Reverse procedure for wheel installation.

1. Remove front seal assembly (pulley side of cassette) if present.
2. Remove belt from pulley and position temporarily around wheel rim.
3. Remove the hub cover from the wheel. Note the wheel to shaft alignment pin under the hub cover. Ensure this pin



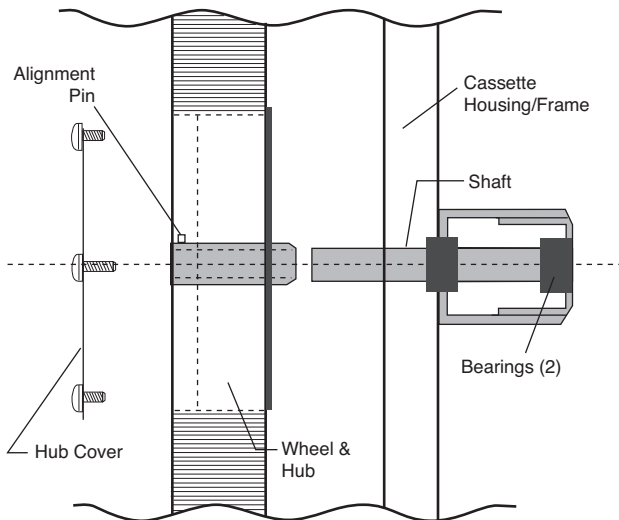
engages the notch at the end of the shaft when reinstalling the wheel.

4. Pull the wheel straight off the shaft. Handle wheel with care to prevent distorting of the wheel.

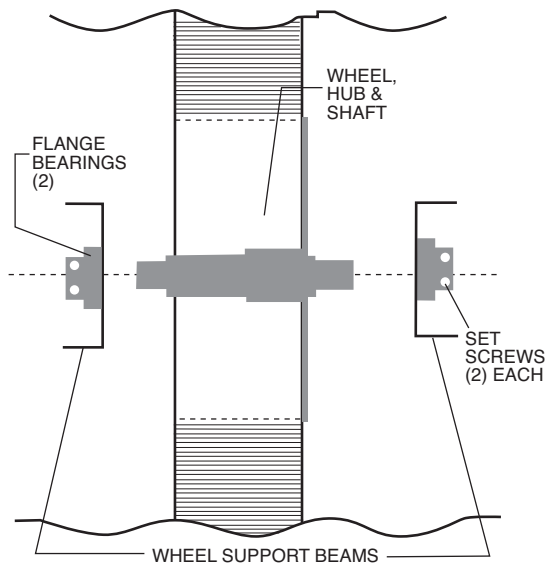
**Removing and Installing Non-Segmented Wheel for Cleaning (62ECC and 62E2C Units)** — Non-segmented energy transfer wheels include the shaft and are secured to 2 wheel support beams by 2 flange bearings with locking collars. See Fig. 31.

To remove the energy transfer wheel, follow Steps 1-4 below. Reverse procedure for wheel installation.

1. Pull the wheel with shaft straight out of the motor side wheel support beam and bearing. Handle wheel with care to prevent distorting of the wheel.
2. Remove the pulley side wheel support beam with bearing by removing the 4 support beam screws.



**Fig. 30 — 62EB and 62E7 Energy Transfer Wheel Assembly**



**Fig. 31 — 62ECC and 62E2C Energy Transfer Wheel Assembly**

3. Remove the belt from the pulley and position temporarily around the wheel rim.
4. Loosen the 2 set screws on each of the 2 wheel bearings. See Fig. 31.

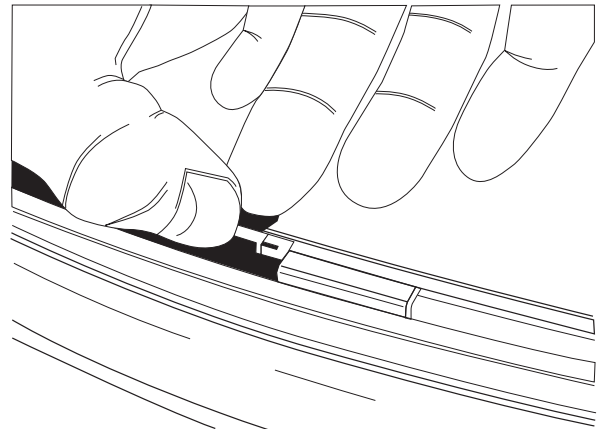
**CAUTION**

When replacing wheel, retighten the 4 bearing set screws. Premature bearing failure could result.

**Removing Wheel Segments for Cleaning (62ECD, 62ED-EU, 62E2D, and 62E3-E6 Units)**

1. Unlock and open the segment retaining brackets on both sides of the selected segment opening. Refer to Fig. 32.
2. Gently lift segment outward.
3. Close segment retaining latches and rotate wheel 180 degrees to remove next segment. Follow this pattern to remove all segments. This pattern will help keep wheel balanced.

To install the segments, see the Installing Wheel Segments section.



**Fig. 32 — Unlocking the Segment Retaining Brackets**

**Installing Wheel Segments**

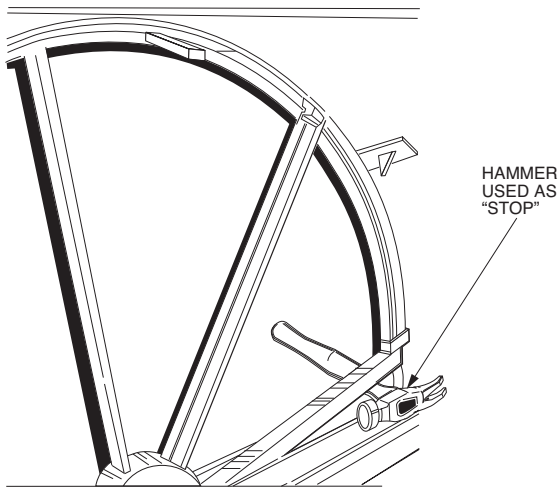
**WARNING**

Before performing service or maintenance operations on unit, turn off main power switch to unit. Electrical shock could cause personal injury.

NOTE: Both installation and removal procedures must be performed from the pulley side of the cassette.

**CAUTION**

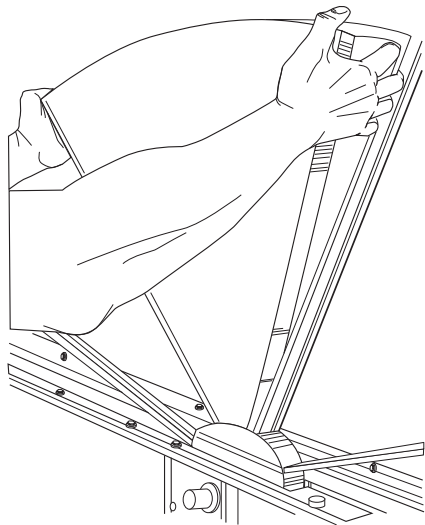
Weight of the installed segment will cause the wheel to accelerate in rotation. Failure to maintain control of the wheel rotation while installing all segments could cause severe injury to fingers or hand caught between revolving spokes and the bearing support beam. Handle of hammer, or other stop, should be inserted through spokes and above or below bearing support beams to limit rotation of unbalanced wheel. See Fig. 33.



**Fig. 33 — Using a Stop on the Wheel**

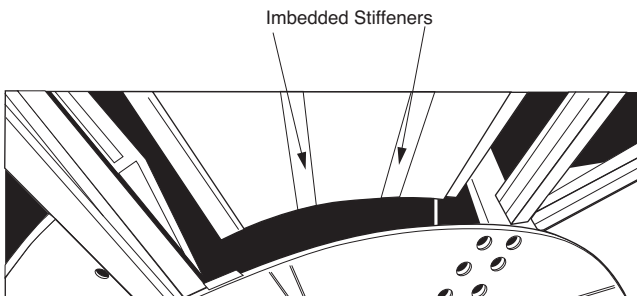
NOTE: The 62EBA, 62EBC, 62ECC, 62E7A, 62E7C, and 62E2C units contain non-segmented wheels which must be completely removed to be cleaned.

1. Begin by positioning one segment opening at the top of the cassette. Unlock and open the segment retaining brackets on both sides of the selected segment opening.
2. Holding the segment as vertical as possible and centered between spokes, insert nose of segment downward between the hub plates. See Fig. 34.



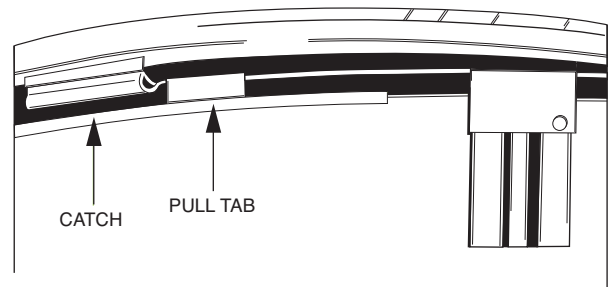
**Fig. 34 — Inserting a Segment of the Wheel**

NOTE: The face of the segment, with the imbedded stiffener (vertical support between nose and rim end of segment) must face the motor side of the cassette. See Fig. 35.



**Fig. 35 — Motor Side View of Segment**

3. Ease the segment downward until its outer rim clears the inside of the wheel rim. Then press the segment inward against the spoke flanges.
4. Close and latch segment retaining brackets to the position shown in Fig. 36. Make certain the retaining bracket is fully engaged under the catch.



**Fig. 36 — Latch Segment Retaining Brackets**

5. Slowly rotate, by hand, the first installed segment to the bottom of the cassette, then install the second segment opposite the first. Repeat this sequence with the 2 installed segments rotated to the horizontal position to balance the weight of installed segments. Continue this sequence with the remaining segments.

### Wheel Drive Motor and Pulley Replacement (62EC-EU and 62E2-E6 Units)

1. Disconnect power to wheel drive motor.
2. Remove belt from pulley and position temporarily around wheel rim.
3. Loosen setscrew in wheel drive pulley using Allen wrench and remove pulley from motor drive shaft.
4. While supporting weight of drive motor in one hand, loosen and remove 4 mounting bolts.
5. Install replacement motor with hardware kit supplied.
6. Install pulley to dimension shown in Fig. 37 and secure setscrew to drive shaft.
7. Stretch belt over pulley and engage in groove.

### Belt Replacement

1. Obtain access to the pulley side bearing access plate. Remove 2 bearing access plate retaining screws and the access plate.
2. Using hexagonal wrench, loosen setscrew in bearing locking collar. Using light hammer and drift (in drift pin hole) tap collar in the direction of wheel rotation to unlock collar. Remove collar.
3. Using socket wrench with extension, remove 2 nuts which secure bearing housing to the bearing support beam. Slide bearing from shaft.

NOTE: Slight hand pressure against wheel rim will lift weight of wheel from inner race of bearing to assist bearing removal and installation. If not removable by hand, use bearing puller.

### CAUTION

Protect hands and belt from possible sharp edges of hole in bearing support beam.

4. Using a wrench, remove diameter seal retaining screws or hub seal retaining screws. Remove diameter seals or hub seal from bearing beam. See Fig. 38.
5. Form a small loop of belt and pass it through the hole in the bearing support beam. Grasp the belt at the wheel hub and pull the entire belt down. Loop the trailing end of the belt over the shaft (Fig. 38 shows belt partially through the opening).

6. Reinstall the bearing onto the wheel shaft, being careful to engage the 2 locating pins into the holes in the bearing support beam. Secure the bearing with 2 self-locking nuts.
7. Install the belts around the wheel and pulley according to the instructions provided with the belt.
8. Reinstall diameter seals or hub seal and tighten retaining screws. Rotate wheel in clockwise direction to determine that wheel rotates freely with slight drag on seals.
9. Reinstall bearing locking collar. Rotate collar by hand in the direction the wheel rotates (see label provided on each cassette for wheel rotation). Lock in position by tapping drift pin hole with hammer and drift. Secure in position by tightening setscrew.
10. Reinstall bearing access cover.
11. Apply power to wheel and ensure that the wheel rotates freely without interference.

**ALTERNATE BELT REPLACEMENT METHODS** — Alternate belt replacement methods may be used in some applications depending upon accessibility of the cassette. Consult instructions provided with the belt for further information.

**Removing the Service Door** — To open the cabinet, turn the eight ¼-turn latches counter clockwise. With a hand on each handle of the door, carefully pull the door straight out.

### Replacing a Blower (All ERV Cabinets Except 62EB and 62E7 Units)

**EXHAUST SIDE** — Turn off power to the unit. Remove all screws from the top panel on the exhaust side of the ERV. Be sure to remove the screws on the center seam. Pry the top panel up from its gasket seat, being careful not to bend the lid. Remove the cover from the blower motor and note the location of

all the wires. Disconnect the wiring from the terminals. Remove all the P-clips, wire ties, and hoses that will keep the blower assembly from lifting out. Remove all the bolts that hold the blower assembly in the ERV unit. Carefully lift the blower assembly from its mounting plate.

**NOTE:** When removing 500 mm and 630 mm blowers it is helpful to get assistance because of the blower's size and weight.

Follow these instructions in reverse order to install the new blower.

**SUPPLY SIDE** — Turn off the power to the unit. Remove the intake air hood (if equipped). Remove all of the screws from the top panel on the supply side of the ERV. Be sure to remove the screws on the center seam. Pry the top panel up from its gasket seat, being careful not to bend the lid. Remove the service doors on both sides and remove the filters or filter racks on the supply side. Remove the cover from the blower motor and note the location of all the wires. Disconnect the wiring from the terminals.

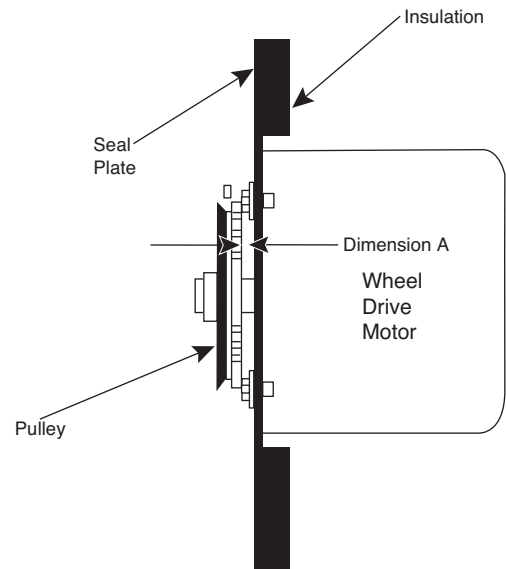
**NOTE:** Push the wheel out from underneath the blower that is being disconnected for more room to work.

Remove all of the P-clips, wire ties, and hoses that will keep the blower assembly from lifting out. Remove all of the bolts that hold the blower assembly in the ERV unit. Carefully lift the blower assembly from its mounting plate.

**NOTE:** When removing 500 mm and 630 mm blowers it is helpful to get assistance because of the blower's size and weight.

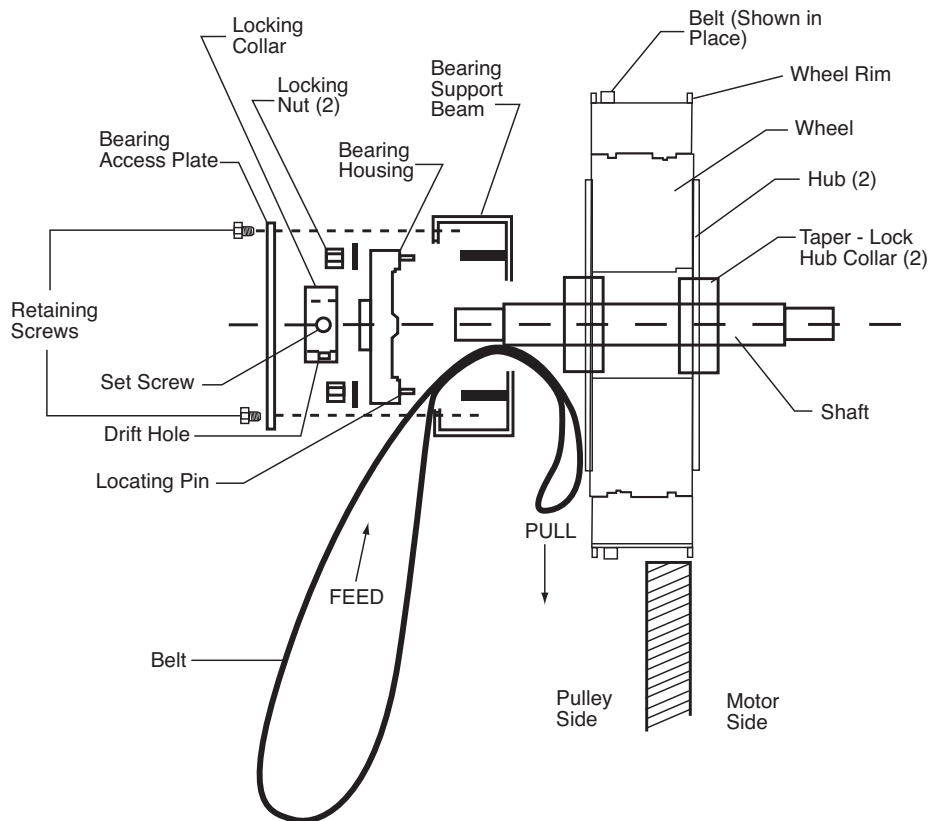
Follow these instructions in reverse order to install the new blower.

62E UNIT SIZE	ERV WHEEL	WHEEL MODEL NUMBER	DIMENSION A	
			mm	in.
B,7	A	ERC-1904	3.2	1/8
	C	ERC-1906	6.4	1/4
C,2	C	ERC-2509	6.4	1/4
	D	ERC-2510C	3.2	1/8
	G	ERC-2513C	3.2	1/8
D,3	D	ERC-3014C	3.2	1/8
	G	ERC-3019C	3.2	1/8
E,4	B	ERC-3615	6.4	1/4
	D	ERC-3622	6.4	1/4
	F	ERC-3623	6.4	1/4
	G	ERC-3628	6.4	1/4
H,5	B	ERC-5230	9.5	3/8
	D	ERC-5248	9.5	3/8
	F	ERC-5245	9.5	3/8
	G	ERC-5262	9.5	3/8
K,6	D	ERC-6475	11.1	7/16
	G	ERC-6488	11.1	7/16
L	D	ERC-6876	11.1	7/16
	G	ERC-68100	11.1	7/16
M	D	ERC-7490	11.1	7/16
	G	ERC-74122	11.1	7/16
N	D	ERC-81110C	11.1	7/16
	G	ERC-81146C	11.1	7/16
P	D	ERC-86125C	11.1	7/16
	G	ERC-86170C	11.1	7/16
R	D	ERC-92135C	11.1	7/16
	G	ERC-92180C	11.1	7/16
S	D	ERC-99160C	11.1	7/16
	G	ERC-99215C	11.1	7/16
T	D	ERC-104195C	11.1	7/16
	G	ERC-104250C	11.1	7/16
U	D	ERC-110220C	11.1	7/16
	G	ERC-110290C	11.1	7/16



**NOTE:** The ERV wheel model number contains the wheel series number, and is located on a label near the drive pulley. For example, ERC-5245 is a 52 series wheel.

**Fig. 37 — Pulley Location**



**Fig. 38 — Belt Replacement (Diameter Seals Removed)**

### Replacing a Blower (62EB and 62E7 Units)

**EXHAUST OR SUPPLY SIDE** — Turn off the power to the unit. Remove all of the screws from the top panel. Pry the top panel up from its gasket seat, being careful not to bend the lid. Disconnect plug from the blower. Remove all of the P-clips, wire ties and hoses that will keep the blower assembly from lifting out. Remove all of the screws holding the blower in the ERV unit and remove the blower. Follow these instructions in reverse order to install the new blower.

### MAINTENANCE

Routine maintenance of the energy recovery cassettes includes periodic cleaning of the energy recovery wheel as well as inspection of the air seals and wheel drive components as follows:

**Cleaning** — The need for periodic cleaning of the energy recovery wheel will be a function of operating schedule, climate and contaminants in the indoor air being exhausted, and the outdoor air being supplied to the building.

The air exchange wheel is “self-cleaning” with respect to dry particles due to its laminar flow characteristics. Smaller particles pass through; larger particles land on the surface and are blown clear as the flow direction is reversed. Any material that builds up on the face of the wheel can be removed with a brush or vacuum. The primary need for cleaning is to remove oil-based aerosols that have condensed on energy transfer surfaces.

A characteristic of all dry desiccants, such films can close off micron sized pores at the surface of the desiccant material, reducing the efficiency by which the desiccant can adsorb and desorb moisture and also build up so as to reduce airflow.

In a reasonably clean indoor environment such as a school or office building, measurable reductions of airflow or loss of sensible effectiveness may not occur for several years.

Measurable changes in latent energy transfer can occur in shorter periods of time in applications such as moderate occupant smoking or cooking facilities. In applications experiencing unusually high levels of occupant smoking or oil-based aerosols such as industrial applications involving the ventilation of machine shop areas for example, annual washing of energy transfer may be necessary to maintain latent transfer efficiency. Proper cleaning of the energy recovery wheel will restore latent effectiveness to near original performance.

To clean, gain access to the energy recovery wheel and remove wheel. Brush foreign material from the face of the wheel. Wash the wheel in a 5% solution of non-acid based coil cleaner or alkaline detergent and warm water.

Soak in the solution until grease and tar deposits are loosened.

**NOTE:** Some staining of the desiccant may remain and is not harmful to performance.

Before removing, rapidly run finger across surface of wheel to separate polymer strips for better cleaning action. Rinse dirty solution from wheel and remove excess water before reinstalling.

### **CAUTION**

Do not use acid based cleaners, aromatic solvents, steam or temperatures in excess of 76.7 C (170 F); damage to the wheel may result.

**Air Seals** — Diameter seals are provided on each cassette to minimize transfer of air between the counter flowing airstreams.

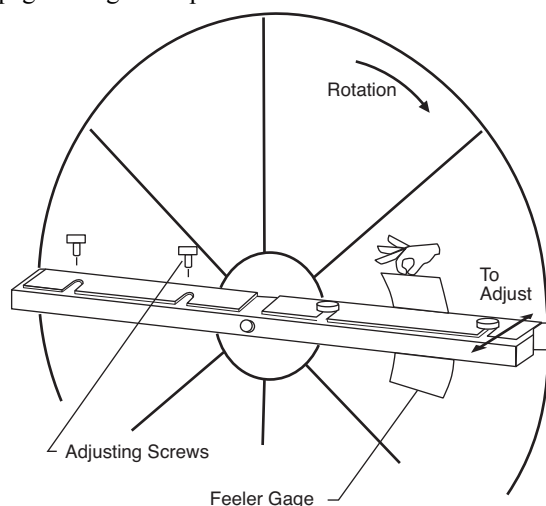
To adjust diameter seals, loosen diameter seal adjusting screws and back seals away from wheel surface See Fig. 39. Rotate wheel clockwise until 2 opposing spokes are hidden behind the bearing support beam. Using a folded piece of paper

as a feeler gage, position paper between the wheel surface and diameter seals. Adjust seals towards wheel surface until a slight friction on the feeler gage (paper) is detected when gage is moved along the length of the spoke. Retighten adjusting screws and recheck clearance with “feeler” gage.

**Wheel Drive Components** — The wheel drive motor bearings are pre-lubricated and no further lubrication is necessary. Make certain air cooling ports are not blocked.

The wheel drive pulley is secured to the drive motor shaft by a setscrew. The setscrew is secured with removable adhesive to prevent loosening. Annually confirm setscrew is secure.

The wheel drive belt is a urethane stretch belt designed to provide constant tension through the life of the belt. No adjustment is required. Inspect the drive belt annually for proper tracking and tension. A properly tensioned belt will turn the wheel immediately after power is applied with no visible slippage during start-up.



**Fig. 39 — Diameter Seal Adjustment**

**Air Filters** — With this ERV unit and with most other forced air heating, cooling and ventilation systems, regular air filter maintenance is of utmost importance. Proper filter maintenance will improve indoor air quality, keep the building air-handling system clean for peak efficiency, and prolong the life of the HVAC (Heating, Ventilation, and Air Conditioning) equipment. The life of the air filters is directly related to the application to which the ERV unit is installed. The air filters should be inspected every couple of weeks until a maintenance schedule is established. The ERV unit is equipped from the factory with throwaway filters, however if the installer changed the filter type, consult the installer for filter maintenance instructions.

**Replacing the Throwaway Filters** — After removing the service door (see Removing the Service Door section) remove the spacer plugs and pull the filters or filter racks out of the cabinet. Replace the filters with the original equipment manufacturer replacements or equivalents. Refer to Tables 1A and 1B for filter sizes.

## TROUBLESHOOTING

See Table 13 for troubleshooting information.

**Table 13 — ERV Troubleshooting**

SYMPTOM	POSSIBLE CAUSES	ACTION TO CHECK	POSSIBLE REMEDY
<b>ERV will not turn on</b>	Disconnect switch is in the off position	Verify that the disconnect switch is in the 'ON' position	Move the disconnect lever to the 'ON' position.
	No power to the ERV	Check for power at the disconnect switch	Using a volt meter verify that the voltage being supplied to the ERV matches the ERV's operating voltage. If the ERV operates on three phase power check all three legs.
	One or more blown fuses	Check for power at the bottom of the fuse block	Using a volt meter verify that the voltage on the bottom side of the fuse block matches the ERV's operating voltage. If the ERV operates on three phase power check all three legs.
	Control board transformer circuit breaker is tripped	Look at the small transformer next to the control circuit board to see if the black circuit pushed out	Depress the circuit breaker back in.
<b>ERV is running but blowers will not turn</b>	The fan speed / CFM level is set too low	Use the user interface push button to view the 'Outside Air' and 'Exhaust Air' settings	Adjust the fan speed / CFM demand levels by pressing the user interface push button and turning the adjust knob.
	One or more blown fuses	Check for power at the bottom of the fuse block	Using a volt meter verify that the voltage on the bottom side of the fuse block matches the ERV's operating voltage. If the ERV operates on three phase power check all three legs.
	Rooftop Economizer Option (if equipped) has shut down the ERV because the rooftop unit is in 'Free Cooling' mode	Check for continuity across the mercury switch on the economizer damper.	Using a continuity meter check for continuity across the two wires that connect to the mercury switch on the economizer damper. If the contacts are open, the rooftop unit is in 'Free Cooling'.
	Smoke Detector Option (if equipped) has shut down the ERV because it is sensing smoke in the exhaust airstream on the ERV.	Check for wiring errors.	Using the wiring schematics verify that the smoke detector is wired to the control board properly.
	Low Temperature Lockout Option (if equipped)	Check to see if the outside temperature is above -30 F (-34.4 C). Check for wiring errors	Use a thermometer to measure the outside temperature. Use the wiring schematics to verify that temperature probe on the intake air side of the ERV is wired properly.
<b>Only one of the two blowers is turning</b>	The fan speed / CFM level is set too low	Use the user interface push button to view the 'Outside Air' and 'Exhaust Air' settings	Adjust the fan speed / CFM demand levels by pressing the user interface push button and turning the adjust knob.
	Rooftop Economizer with Power Relief Option (if equipped) has shut down the supply blower because the rooftop unit is in 'Free Cooling' mode	Check for continuity across the mercury switch on the economizer damper	Using a continuity meter check for continuity across the two wires that connect to the mercury switch on the economizer damper. If the contacts are open, the rooftop unit is in 'Free Cooling'.
	One of the blowers is wired incorrectly	Check for wiring errors.	Using the wiring schematics verify that both the power wires and the control wires are connect properly.
	The ERV Standard Frost Protection Option has turned off the supply blower to defrost the wheel	Check for frost on the wheel.	Wait for Defrost mode to finish.
<b>Blowers are on but the wheel is not turning</b>	The ERV Enthalpy Control, Dry bulb Control / Wheel Bypass Stop / Jog Option (if equipped) is activated	Check for Stop / Jog movement of wheel.	Wait until sequence is completed.
	The wheel motor is unplugged.	Check to see if the connector between the wheel motor and the cabinet wiring is securely connected.	Plug the two connectors together.
	The wheel motor is wired incorrectly.	Check for wiring errors.	Compare the wheel motor, control board and relay are wired correctly.
	The wheel belt is off or broken	Check the wheel belt.	Verify that the wheel belt is seated in the pulley and on the rim of the wheel.
	The air seals on the wheel are too tight	Check to see if the wheel spins freely.	Carefully rotate the wheel by grabbing the outer rim and spinning the wheel. After letting go the wheel should continue to spin for three to four seconds. Should the air seals need adjusting see the maintenance section of this book.



# START-UP CHECKLIST

## I. PROJECT INFORMATION:

Job Name \_\_\_\_\_

Start-Up Performed By \_\_\_\_\_

ERV Unit Designation \_\_\_\_\_

Date \_\_\_\_\_

Phone Number \_\_\_\_\_

## II. DESIGN INFORMATION:

Application \_\_\_\_\_

CFM (Supply/Exhaust) \_\_\_\_\_

External Static Pressure (Supply/Exhaust) \_\_\_\_\_

Supply/Exhaust Configuration \_\_\_\_\_

Voltage/Phase \_\_\_\_\_

ERV Unit Part Number \_\_\_\_\_

Coupled to RTU or stand-alone \_\_\_\_\_

### Specify RTU.

#### NOTE: Complete This Section for Coupled Applications Only

Model Number \_\_\_\_\_

HVAC Unit Discharge Type (Down discharge or horizontal discharge.) \_\_\_\_\_

#### Roof Curb (Option)

Yes  No

14-in. Tall Roof Curb (Field Installed)

Horizontal Supply/Return Base (Field Installed)

Combination ERV-RTU Curb (Field Installed)

#### Horizontal Transition

#### NOTE: Complete This Section for Coupled Applications Only.

Transition Part Number (Field Installed)

#### Electrical Disconnect (Option)

Yes  No

Fused (Factory Installed)

Switched (Factory Installed)

#### Two-Position Motorized Dampers (Option)

Yes  No

Outside Air Damper (Factory Installed)

Exhaust Air Damper (Factory Installed)

#### Pre-Heater (Option)

Yes  No

kW \_\_\_\_\_

Temp Control (Factory Installed)

Temp and Static Pressure Control (Factory Installed)

#### Frost Protection (Option) (Factory Installed)

Yes  No

#### NOTE: Do Not Use With Pre-Heater.

ERV Wheel VFD (Option) (Factory Installed)

Yes  No

Low Temperature Lock Out (Option) (Factory Installed)

Yes  No

Filter Maintenance Indicator (Option) (Factory Installed)

Yes  No

ERV Blower Maintenance Indicator (Option) (Factory Installed)

Yes  No

ERV Wheel Maintenance Indicator (Option) (Factory Installed)

Yes  No

#### Field-Installed Accessories

Yes  No

ERV Remote Mount Timer (Field Installed)

ERV Remote Control Readout (Field Installed)

CUT ALONG DOTTED LINE

CUT ALONG DOTTED LINE